JAY J. AGUE
Curriculum Vitae

Addresses: Department of Earth and Planetary Sciences
Yale University
Kline Geology Laboratory, 210 Whitney Avenue
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Peabody Museum of Natural History
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Education and Degrees

Honorary Master of Arts Privatum, Yale University, 2004
Ph.D., University of California, Berkeley, Geology, December 1987
M.S., Wayne State University, Detroit, Michigan, Geology, December 1983
B.S., Wayne State University, Detroit, Michigan, Geology, May 1981 (High Distinction)

Employment/Titles

Chair, Yale Science and Engineering Chairs Council (2015-16)
Acting Co-Director, Yale Climate and Energy Institute (2015-16)
Henry Barnard Davis Memorial Professor of Geology and Geophysics (2012-)
Chair, Department of Geology and Geophysics, Yale University (1 Jul 2012-30 Jun 2018)
Acting Director, Yale Peabody Museum of Natural History (1 Jul 2008 to 31 Dec 2008)
Director of Undergraduate Studies, Geology & Geophysics, Yale University (2004-08)
Professor, Department of Geology and Geophysics, Yale University (2003-)
Director of Graduate Studies, Geology & Geophysics, Yale University (Spring 2002, 2012)
Curator-in-Charge of Mineralogy & Meteoritics, Yale Peabody Museum of Natural History (1998-)
Associate Professor, Department of Geology and Geophysics, Yale University (1995-2003)
Director, Electron Microprobe and X-ray Diffraction Laboratories, Yale University (1990-)
Assistant Professor, Department of Geology and Geophysics, Yale University (1988-95)
Consulting (historic building stone/mortar restoration), Leland Torrence Enterprises (various projects since the late 90's)
Consulting, Intercon Geologic Consultants (1982)

Editorships and Editorial Boards

Senior Editor, *American Journal of Science* (1998-2008)
Associate Editor, *American Journal of Science* (1996-98; 2008-)
Editorial Board, *Chemical Geology* (2009-2019)
Editorial Board, *Geology* (1995-97)
Editorial Board, *Journal of Metamorphic Geology* (2012-)

Professional Memberships

American Geophysical Union
Geochemical Society
Geological Society of America
Geological Society of Connecticut
Geological Society of London
Mineralogical Society of America (elected *Councilor* in 2017)
Sigma Xi

Awards & Recognition

Max-Kade-Foundation Visiting Professorship, Heidelberg University (declined due to COVID-19 pandemic, 2020).
Fellow, Geological Society of London (2020)
Visiting Professor, Curtin University, Australia (spring, 2019)
American Federation of Mineralogical Societies Honorary Award for Distinguished Achievement in the Field of Earth Sciences (2017)
Fellow, Mineralogical Society of America (2016)
Fellow, Geological Society of America (2016)
Daly Lecturer, American Geophysical Union (2012)
"Choice Outstanding Academic Title" award from the American Library Association for the textbook "Principles of Igneous and Metamorphic Petrology" 2nd Ed. by Philpotts and Ague, Cambridge University Press (2009)
Editors Citation for Excellence in Refereeing, American Geophysical Union (1999)
Visiting Distinguished Lecturer, James Cook University, Townsville, Australia (1995)
Phoebe A. Hearst Distinguished Lecturer, U.C. Berkeley (1988)
Charles Meyer Fellowship in Economic Geology, University of California, Berkeley (1985-86)
Chevron Fellowship in Economic Geology, University of California, Berkeley (1984-85)
Louderback Award, University of California, Berkeley (1984)
Michigan Mineralogical Society Field Research Award (1982)
Outstanding Geology Graduate Student, Wayne State University (1982)
Golden Key National Honor Society (1981-)
Outstanding Geology Undergraduate, Wayne State University (1981)

Merit Scholarship, Wayne State University (1977-81)

Invited and Keynote Presentations at International Meetings

Keynote Speaker, Deep Crust Fluid-rock Interaction Symposium, Geological Survey of Japan and the Tsukuba EXPO `85 Memorial Foundation, Japan (1989)
Invited speaker, Gordon Research Conference on Inorganic Geochemistry (1989)
Invited speaker, V.M. Goldschmidt Conference for the Advancement of Geochemistry (1990)
Invited Speaker, GSA Penrose conference on Applications of Strain (1992)
Invited Speaker, AGU Chapman Conference on Hydrogeological Processes (1994)
Invited Speaker, Frontiers in Geochemistry Symposium: Geological Society of America Annual Meeting (1995)
Distinguished Panelist, Conference on "Crossing the Frontier, Photographs of the Developing West, 1849 to the present": Yale University Art Gallery (1997)
Keynote Speaker, Geoscience 2000–Geological Society of London Biennial Meeting (2000)
Invited speaker, Goldschmidt Conference, session on "Interaction along mineral grain boundaries: Diffusion, mass transfer, and the role of fluids" (2005)
Invited speaker, Goldschmidt Conference, session on "Subduction zone metamorphism 2. Fluids from the slab to the surface" (2005)
Keynote speaker, American Geophysical Union, "Fluids in the Earth" (2006)
Invited speaker, Geological Society of America Annual Meeting session on "Hydrogeology: Fluids at plate boundaries and aquifer system analysis" (2006)
Invited speaker, Geological Society of America Annual Meeting session on "Diversity in crustal fluid compositions: geological origins and consequences" (2007)
Keynote speaker, European Geophysical Union Meeting, "Metamorphic processes: What do we really know?", Vienna, Austria (2008)
Keynote speaker, International Workshop on Earth Surface-Forming Processes: Contribution of Lithoshperic Processes. University of Potsdam (2008)
Invited speaker, Geological Society of America Annual Meeting session on "Advances in Understanding Metamorphic Processes: Nanoscale to Nappes" (2009)
Invited speaker, Geological Society of America Annual Meeting session on "Frontiers in metamorphic petrology: Integrating mass transport, heat transport, reaction kinetics, and tectonics with mineral equilibria" (2010)
Keynote presentation (lead author Colin Cooke), 22nd V.M. Goldschmidt Conference, Montréal, Québec, Canada, "Evolution of the ubiquitous presence of mercury in the environment of the Anthropocene" (2012)
Invited speaker, American Geophysical Union session on "The Geophysics and Geochemistry of Terrestrial Environments: Fluids, Subduction Zones, Metasomatism, Ore Deposits, Igneous Bodies, and Meteorites I" (2012)
Keynote, European Geophysical Union session on "Geodynamic implications of petrological observations indicating non-lithostatic pressure" (2015)
Keynote, The Institute for Geoscience Research (TIGeR) Conference on "Key Issues in Fluid-Rock Interaction", Curtin University, Perth, Australia, (23-25 Sep 2015)

Invited Senior Participant and Lecturer, "Water and the fate of subducted CO_2", Cooperative Institute for Deep Earth Research (CIDER) Workshop, UC Berkeley (22 Jul 15)
Invited speaker, Geological Society of America Annual Meeting Session on "The Extremes of Metamorphism" (with co-author J.A. Axler) (2015)
Invited speaker, Geological Society of America Annual Meeting Session on "Mountains across the oceans: Caledonian, Variscan and Appalachian orogenies through time" (with co-authors J.A. Axler and Xu Chu) (2015)
Invited speaker, Geological Society of America Annual Meeting session on "Heat and mass transfer through Earth's crust during metamorphism" (with coauthor J.A. Axler) (2016)
Invited presentation, American Geophysical Union Annual Meeting session on "Chemo-mechanical Mass Transport in Metamorphic, Orogenic, and Planetary Systems: From Diffusion to Large-Scale Tectonics" (2016)
Keynote, The Institute for Geoscience Research (TIGeR) Conference on "Timescales of Geological Processes", Curtin University, Perth, Australia (13-15 Sep 2017)
Keynote, Geological Society of Connecticut annual meeting; "Mineralogy at the Yale Peabody Museum: History and Highlights" (17 Nov 2017)
Invited presentation with coauthor E.M. Stewart, Earth in Five Reactions Workshop; "Decarbonation (and carbonation) reactions", Deep Carbon Observatory, Washington, DC (23 Mar 2018).
Invited presentation, Geological Society of America Annual Meeting session on "Metamorphic Petrology Past, Present and Future: Preparing for the Next 100 Years with the Mineralogical Society of America" (with coauthors D.S. Keller and E.M. Stewart; 2019).

Field Research Experience

Cascades Mountains, Washington State and British Columbia
Connecticut and New England
Greece
Newfoundland
New Zealand
Papua New Guinea
Scottish Highlands
Sierra Nevada, California
Spitsbergen (Svalbard Archipelago)

Students and Post-doctoral Scholars

(20 Undergraduates; ~40 total Ph.D. Committees)

Schrag, Daniel P., 1988, The genesis and relative timing of mineralization of the Stevenson Mine, a copper skarn in western Connecticut: Yale undergraduate senior thesis, (co-advisor with B.J. Skinner and D.M. Rye).
Schoenbaum, Miriam, 1989, Nitrogen content and magma sources of the Narragansett Pier granite, Rhode Island: Yale undergraduate senior thesis, 28 p.
Breault, Michael, 1992, Relative timing of metamorphic mineral growth and veining in kyanite zone pelites of the Wepawaug Schist, Connecticut:Yale undergraduate senior thesis, 33 p.
Evans, David, A., 1992, Geospeedometry and the metamorphic history of the Chiwaukum schist: Yale undergraduate senior thesis, 34 p.

Kwei, Stephanie L., 1993, The mineralogy and petrology of the Log-jam Schist: Constraints on the protolith and metamorphic processes: Yale undergraduate senior thesis, 22 p.

Sherwood, Kira E., 1994, The role of rock chemistry in controlling local and regional scale habitat boundaries of *Sequoiadendron giganteum*: Yale undergraduate senior essay, 33 p.

Baxter, Ethan F., 1995, Evidence for metasomatism during regional metamorphism of pelites at the Barrovian type-locality, Glen Clova, Scotland from observed mineralogical and f_{O2} buffer curve variations: Yale undergraduate senior thesis, 118 p.

van Haren, Joost L.M., 1995, Evidence for stable isotope exchange between external, quartz vein forming fluids and pelitic wall rock during amphibolite facies metamorphism: Yale M.S. thesis, 70 p.

Karsh, Kristen, 1998, Multiple episodes of fluid-rock interaction in carbonated serpentinites in the Orange-Milford belt of south-central Connecticut: Yale undergraduate senior thesis, 44 p.

Carson, Chris J., 1999 – 2001, Damon Wells Post-doctoral scholar.

MacPhee, Daniel R., 2001, Oxidation-reduction equilibrium in piemontite schist, Otago, New Zealand: Yale undergraduate senior thesis, 45 p.

Donald, Elizabeth L., 2002, Examining fluid-mineral interaction and fluid-flow direction using oxygen isotopes in phosphates from subducted crust, Tinos Island Cyclades (Greece): Yale undergraduate senior thesis, 49 p.

Wilbur, Dru E., 2003, Morphological and chemical evidence for kinetic controls on garnet growth during regional metamorphism, Orange-Milford belt, Connecticut: Yale M.S. thesis, 57 p.

Breeding, C. Michael, 2004, Fluid flow and mass transfer in subduction zones: A multi-scale view: Yale Ph.D. thesis, 128 p.

Masters, Rebecca L., 2004, Fluid flow during Barrovian metamorphism, Stonehaven, Scotland: Yale Ph.D. thesis, 179 p.

Henderson, Kathryn, 2004, Carbon sequestration in geologic formations: Exploring the potential of unconventional reservoirs and the role of dehydration reactions: Yale undergraduate senior thesis, 53 p.

Jeanty, Laura, 2006, An upper bound on conventional oil resources and peak production: Hubbert meets Grossling: Yale undergraduate senior essay, 47 p.

Levitan, Denise M., 2006, Laboratory simulation of acid precipitation-induced nutrient leaching in topsoils: Yale undergraduate senior thesis, 50 p.

Stevenson, James, A., 2006, Partial melting of eclogite, Tromso, Norway: Yale Ph.D. thesis, 323 p. (lead advisor M. T. Brandon).

Andrews, Megan, Y., 2008, Quantification of the effects of angiosperms and gymnosperms on silicate weathering and related soil nutrient cycling: Yale Ph.D. thesis, 174 p.

Emmanuel, Simon, 2007-2009, Bateman Post-doctoral fellow.

Bucholz, Claire, E., 2009, Fluid flow and Al transport during quartz-kyanite vein formation, Unst, Shetland Islands, Scotland: Yale undergraduate senior thesis, 52 p.

Delman, Andrew, 2009, Erosion and overwash: Tracking and numerical modeling of coastal barrier evolution at Little Homer Pond, Martha's Vineyard, Massachusetts: Yale undergraduate senior thesis, 59 p.

Lowry, Brent, 2009, Discussion of the tectonic implications of ultrahigh-pressure metamorphism: Yale undergraduate senior essay, 42 p.

Lyubetskaya, Tatiana, 2010, New Models of Thermal Evolution and Fluid Flow in Collisional Orogens: Yale Ph.D. thesis, 267 p.

Christofferson, Lee, 2010, A strategic metal for green technology: The geologic occurrence and global life cycle of lithium: Yale undergraduate senior essay, 80 p.

Aarnes, Ingrid, 2010, Sill emplacement and contact metamorphism in sedimentary basins: Ph.D. thesis, University of Oslo, 181 p. (Opponent for Ph.D. defense).

Casasanto, Nicolas, 2012, Frack Attack: Weighing the Debate over the Hazards of Shale Gas Production, Yale undergraduate senior essay, 49 p.

Dunnington, Lucila, 2012, Mineral reactions during natural carbon sequestration in low-permeability rocks: Yale undergraduate senior thesis, 35 p.

Cooke, Colin, 2010-2012; Interdepartmental Post-doctoral fellow.

Vorhies, Sarah H., 2013, Pressure-temperature conditions, timing, timescales, and mechanisms of metamorphism in the Barrovian zones, Scotland: Yale Ph.D. thesis, 180 p.

Carr, Dalton, 2015, Formulating Success: Dissecting Renewable Portfolio Standards (RPS) in both New York and Texas for Application in California, Yale undergraduate senior thesis, 52 p.

Chu, Xu, 2015, Metamorphic phase equilibria and diffusion kinetics, with applications to the Taconic-Caledonide orogenic belt: Yale Ph.D. thesis, 266 p.

Tian, Meng, 2016, Compaction-driven fluid flow during metamorphism: Its impacts on carbon dioxide transfer, thermal advection, and its competition with porous convection: Yale Ph.D. thesis, 177 p.

Gonzalez, C.M., 2016, A petrological thermomechanical study on the behavior of CO_2 in the mantle lithosphere: Ph.D. thesis, University of Western Australia, 153 p. (Examiner for Ph.D. thesis)

Axler, Jennifer A., 2017, New Indicators of Ultrahigh Temperature Metamorphism and their Petrogenetic Implications for the New England Appalachians, Yale Ph.D. thesis, 271 p.

Keller, Duncan S., present; Ph.D. program

Piccoli, Francesca, 2016-17 (visiting Ph.D. student, Insitut de Minéralogie, Physique des Matériaux et Cosmochimie (IMPMC), UMR7590, CNRS-UPMC-MNHN-IRD).

Lewerentz, Alexander, 2017, Fluid-induced alteration of metasedimentary rocks in the Scottish Highlands, Ph.D. thesis, Stockholm University, (opponent for Ph.D. defense).

Kuhn, Theo, 2018, Al-in-hornblende barometry of southern New England intrusions and comparison with metamorphic bathograds: Yale undergraduate senior thesis, 30 pp.

Stewart, Emily M., 2020, Rock metamorphism and the global carbon cycle, Ph.D. thesis, Yale University, 157 p.

Haws, Anne, present; Ph.D. program

Hess, Benjamin, present; Ph.D. program

Wyatt, Christine Demaris, present; Ph.D. program

Tassara, C. Santiago, present; Bateman Postdoctoral Scholar

Service

Yale

Committee on Honors and Academic Standing (CHAS), Yale University, 1998-2000.

Radiation Safety Committee, Yale University, 2001-2003.

Advisory Committee on Environmental Management, 2002-05.

Freshman Advisor, Branford College, Yale University, 2004-05, 2005-06, 2007-08, 2010-11, 2011-12, 2013-14, 2015-16.
Yale Science Council, 2005-12.
Director, Peabody Fellows/NSF Geoscience Education program for Connecticut schoolteachers, 2009-2013.
Yale Arts Area Advisory Committee, Subcommittee on Conservation, 2010-12.
Yale Student Environmental Coalition, Advisory Board, 2010-12.
Panel Speaker, Clean Energy Innovation Conference, Yale Climate and Energy Institute, 24 Apr 2010.
Chair, Exhibits Committee, Yale Peabody Museum of Natural History, 2010-13.
Member, West Campus Energy Sciences Institute Advisory Committee, 2011- .
Faculty co-leader (David Evans, leader), Department of Geology and Geophysics field trip to South Africa and Namibia, August, 2011.
Yale Undergraduate Energy Club presentation, "Shale gas", 12 Apr 2011.
Yale Undergraduate Energy Club presentation, "Carbon sequestration", 4 Oct 2011.
Faculty leader, Department of Geology and Geophysics field trip to western Connecticut, Oct 2011, Oct 2015.
International symposium organizer (with Zhengrong Wang), "Frontiers in Earth Surface System Interactions", Dept. of Geology and Geophysics, Yale University, 2011.
Yale College Admissions Committee, 12 Mar 2012.
"Mineral Carbon Sequestration", Yale Climate and Energy Institute, 9 Mar 2012.
Steering Committee, Fourth Annual Yale Alumni Energy Conference, 23 Mar 2012.
"Mineral Carbon Sequestration Research at Yale", Fourth Annual Yale Alumni Energy Conference, 23 Mar 2012.
Yale Bulldog Days Master Class: "Gems, Minerals, and Meteorites: From the Origins of Yale to the Origins of the Solar System", 17 Apr 2013.
Yale representative, Association of American Universities Undergraduate STEM Initiative Department Chair Workshop, 27-29 Apr 2015.
Lead organizer, international conference joint between G&G and the Energy Sciences Institute (ESI) on "Geological Approaches to Carbon Management", held in May 2015.
Member, Provost's faculty review committee (2015-18).
Chair, Science and Engineering Chair's Council (2015-16).
Chair, Advisory Committee for reappointment of the Head of Branford College (spring 2016).
Curator-in-Charge for Annual Yale Peabody Museum Gem and Mineral Symposium (2016-present).
Chair, Search Committee for Head of Branford College (spring 2017).
Member, Physical Science and Engineering Area Committee and Tenure Appointments Committee (2021-23).

External

Yale representative, DOSECC drilling panel (1988-2012)
Conference Session co-Chair (with G.T. Roselle): "Reactive fluid flow during metamorphism: Field studies and modeling"; 11th Annual Goldschmidt Conference, 2001.
National Research Council/National Academies "Workshop on novel approaches to carbon management", Irvine, California (2003); Author/Contributor for: *Novel Approaches to Carbon*

Management: Separation, Capture, Sequestration, and Conversion to Useful Products - Workshop Report, 2003, National Research Council: National Academies Press, Washington, DC, ISBN-10: 0-309-08937-9.

National Research Council/National Academies DOE grant proposal review committee for "Novel approaches to the management of greenhouse gases", Washington DC, 2003.

National Research Council/National Academies performance assessment of "Novel approaches to the management of greenhouse gases" DOE grant program, Washington DC, 2004.

Conference Session co-Chair (with G. E. Bebout): Crustal fluid-rock interactions, mass transfer, and cycling of volatiles; 11th Water-Rock Interaction Symposium, Saratoga Springs, New York, 2004.

Conference Session co-Chair (with E.F. Baxter and G. Hirth): Quantitative constraints on rates of reaction, deformation, and mass transfer; American Geophysical Union meeting, San Francisco, 2004.

Nominations Committee, VGP Section, American Geophysical Union, 2006-07.

Conference Session co-Chair (with M. Feineman, G. Bebout, and I. Savov): Subduction Zone Metamorphism: Fluid-Rock Interaction in Time and Space; American Geophysical Union meeting, San Francisco, 2008.

Review Panel, National Science Foundation, Division of Earth Sciences, 2009-11.

Nominations Committee, Geochemical Society, 2009-11.

Conference Session co-Chair (with D. Harlov): Nano- and Micro-scale Processes at Mineral Grain and Phase Boundaries in Metamorphic and Igneous Rocks: Solid-State Diffusion, Dissolution-Reprecipitation, and Mass Transport; American Geophysical Union meeting, San Francisco, 2009.

Conference Session co-Chair (with P. Nabelek): Simulation of Metamorphic Processes-Theory, Experiments, and Numerical Models; Goldschmidt Conference, 2010.

Conference Session co-Chair (with E. Baxter and M. Caddick): Garnet and its use in Unravelling Tectonic and Metamorphic Processes; Geological Society of America Annual Meeting, 2010.

Conference Session co-Chair (with A. Skelton and A. Putnis): Fluid flow in the Earth's crust; Goldschmidt Conference, 2011.

Roebling Medal Committee, Mineralogical Society of America, 2011-14.

Award Committee, Geological Society of America Mineralogy, Petrology, Volcanology, and Geochemistry Division, Feb 2012-14.

Panelist, United States Geological Survey, CO_2 Sequestration in Unconventional Reservoirs Workshop, NCTC, Sheperdstown, WV, 28-29 Mar 2012.

Board of Directors, DOSECC (Drilling, Observation and Sampling of the Earth's Continental Crust), 21 May 2012 – 2015.

Conference Session co-Chair (with A. Putnis, L. Baumgartner, and W. Carlson): Mechanisms of mineral reactions and fluid-rock interaction; 34th International Geologic Congress, Brisbane, Australia, Aug 2012.

Panelist, Deep Carbon Observatory workshop, Washington, DC, 4-5 Mar 2013.

Conference Session co-Chair (with E.F. Baxter and M. Caddick): Garnet: Common Mineral, Uncommonly Useful; American Geophysical Union Annual Meeting, San Francisco, Dec 2013.

Lead organizer (with O. Beyssac): Workshop on Tectonic Fluxes of Carbon, sponsored by the Deep Carbon Observatory; San Francisco, 8 Dec 2013.

Visiting External Review Committee, Department of Earth and Planetary Sciences, Johns Hopkins University, 27-28 Oct 2014.

Cooperative Institute for Dynamic Earth Research (CIDER), Senior participant and lecturer, U.C. Berkeley, 13-24 Jul 2015.

National Science Foundation, GeoPRISMS Program mid-life review, Divisions of Ocean Sciences and Earth Sciences, Washington DC, Aug 31 and Sep 1, 2015.

Advisory Board member, Exterra Field Institutes and Research Endeavor (E-FIRE), a $4M NSF Partnerships for International Research and Education (PIRE) project (2016-2020).

Distinguished Public Service Medal committee, Mineralogical Society of America, 2017-2019.

Nominating Committee for Officers, Mineralogical Society of America, 2017-2019.

Elected Councillor, Mineralogical Society of America, 2017-2020.

Chair, Mineralogy and Petrology Award, Mineralogical Society of America, 2018.

Presenter and panelist, Earth in Five Reactions, Deep Carbon Observatory, Washington DC, 22-23 Mar 2018.

Conference Session co-Chair (with Guevara, V., Viete, D., and Kohn, M.): Metamorphic records of lithospheric processes: Everyday, exceptional, and extreme; Goldschmidt Conference, Aug 2018, Boston.

Geological Society of Connecticut Academic Advising Committee, member, 2018 -.

Chair, Mineralogy Society of America Award, Mineralogical Society of America, 2019.

Chair, Nominations Committee, Mineralogical Society of America, 2019-20.

Museum Exhibits

"Digging for Meaning: Rocks, Minerals, Gems, and the Yale Seal". This Curator's Choice exhibit explored the origins of the Hebrew text on the Yale seal. This text is directly related to rocks, minerals, and gems dating back to the biblical time of Moses. Yale Peabody Museum of Natural History (2002).

Lead curator for exhibit on the coastal environment of Connecticut which traveled to the Natural History Museum of Crete as part of the Peabody Museum-Natural History Museum of Crete collaboration funded by the Niarchos Foundation (2006).

"Hall of Minerals, Earth, and Space" (HoMES). Lead curator for a major new permanent exhibition installed in the Peabody Museum of Natural History, Yale University. HoMES is designed to foster an appreciation for the wonders of our planet and, at the same time, illustrate how our survival is inextricably linked to global interactions between the solid Earth, its oceans, and its atmosphere. The exhibition draws upon the vast meteorite, mineralogy, and geology collections of the Peabody Museum as well as the latest scientific research to unlock the mysteries of the rock record. The ultimate goals are to capture the imaginations of Peabody's visitors, including those of budding young scientists, and nurture their interests by bringing together the HoMES exhibition and ongoing educational programs at the Museum (2008).

Lead Curator for the David Friend Hall of Minerals at the Yale Peabody Museum of Natural History, opened 23 Oct 2016.

Fundraising and Donations

1) Major fundraising for the Hall of Minerals Earth and Space (HoMES) from private donors, foundations, and industry. This activity provided all funds necessary for the Hall.
2) Donations of minerals to the Division of Mineralogy. Noteworthy recent donations include a suite of eight sapphires showing the color spectrum from purple-blue-yellow; "The Yale Blue Sapphire"; a suite of over a dozen uncut uncolored and pink diamonds; a suite of uncut rubies from all major gem ruby localities worldwide; a suite of uncut sapphires from all major gem sapphire localities worldwide; a large cornflower blue sapphire, cut gem sphalerite, a large (fist-sized) twinned spinel, and a suite of over 20 Ethiopian gem opals.
3) Establishment of the Kumpati S. and Barbara L. Narendra Mineral and Meteorite Endowment Fund (2012).
4) Establishment of the Warren Mineralogy Endowment Fund at the Yale Peabody Museum of Natural History (2013).
5) Establishment of Cora Miller Gem Bequest, Yale Peabody Museum of Natural History.
6) Establishment of the Joseph G. Greenberg Field Studies Fund in Geology and Geophysics (2014).

Public Education and the Media

Research featured in magazines and newspapers including: The Los Angeles Times, Sacramento Bee, Science News (28 Jan 95; 21 Nov 98), New Scientist (21 Nov 98), New Haven Register, Yale Science News Tips, Yale Alumni Magazine (Dec 94), Yale Daily News (30 Nov 98), Yale Bulletin and Calendar (14 Dec 98), Chemical and Engineering News (8 Nov 99), "Research Highlights" section of the NSF EAR Division web site (2000), Geotimes (Jul 03), Our Amazing Planet website (2012) http://www.ouramazingplanet.com/3898-extreme-hot-rocks-united-states.html. In 2008, the newly opened Hall of Minerals, Earth, and Space was featured several times, including the in the New Haven Register (11 Dec 08), the Public Television show "Positively Connecticut" (18 Dec 08), and WTNH television news (5 Aug 09). Public lectures for New Haven Mineral Club (CT), Meriden Mineral Club (CT), and Stamford Mineral Club (CT). Stony Creek granite feature, NH Register, 17 Jul 11.

Frontiers in Science and Engineering, Yale University, "Mineral Resources and the Environment" (1998)
O.C. Marsh Lecture Series, Yale Peabody Museum of Natural History; "Mountains and Minerals of the Earth" (2000)
Public lecture on the geological history of the Stony Creek granite, Willoughby-Wallace library, Stony Creek, Connecticut (2000). This lecture was filmed and featured numerous times on public access television in fall 2000 and winter 2001.
Public lecture on the geological history of Connecticut and the Stony Creek granite, Blackstone library, Branford, Connecticut (2001)
O.C. Marsh Lecture Series, Yale Peabody Museum of Natural History; "Minerals: From Raw Materials to Masterpiece" (2001)
"Flesh and Stone - A walking tour of Architectural Geology"; Tour of geological highlights of the Yale Campus for members of the Peabody Museum and the general public (2001)

Lecture for Peabody Museum Volunteer Enrichment Program, “Mountains and Minerals of Earth” (2001)
Panel member for discussion of the BBC/Discovery channel production of Doyles’s “The Lost World”, Peabody Museum (2002)
Lecture for Peabody Museum Volunteer Enrichment Program, “Digging for Meaning: Rocks, Gems, and the Yale Seal” (2003)
Leader of AYA Assembly (Yale Alumni) tours of Mineralogy collection, Peabody Museum (2003)
Yale Institute for Biospheric Studies lecture, “Carbon dioxide in Earth’s crust and atmosphere: Past, present, and future” (2004)
Faculty leader for Niarchos Summer study program, part of the Peabody Museum-Natural History Museum of Crete collaboration (2004). See feature in the Yale Environmental News, 2004, v. 10, p. 13.
Field trip leader for geologic walk around the Stony Creek area, sponsored by the Guilford Land Conservation Trust Spring Walks program (2005)
Scientific consultant for the Project 2K artistic multimedia presentation at the Stony Creek quarry, Branford, CT (2005)
Leader of field trip dealing with the geology of the building stones of Yale, New Haven Festival of Arts and Ideas (2005)
O.C. Marsh Lecture Series, Yale Peabody Museum of Natural History; "The Origins of Gems and Precious Metals" (2006)
Invited lecture for Weir Preserve Celebration; “600 Million Years of Geologic History Preserved in the Connecticut Landscape” (Weir Farm Historic Site, National Park Service), Ridgefield, Connecticut (2006)
Lecture with Benjamin Zucker on the Gems of Yale for Parent’s weekend (2006)
Lecturer and field trip leader, “Two sides of a trap rock ridge”, Natural Resource Council of Connecticut, North Branford, CT (2007)
Leader of field trip dealing with the geology of the building stones of Yale, New Haven Festival of Arts and Ideas (2007)
Scientific consultant for “Terra Firma” summer education program for 3-5 graders, Yale Peabody Museum of Natural History (2006, 2007)
Yale Institute for Biospheric Studies lecture, “Exergy, Energy, and Sustainability” (2008)
Invited lecture on the geology of the Branford, Connecticut area for the Branford Land Trust and the Friends of the Farm River Estuary (2008)
O.C. Marsh Lecture Series, Yale Peabody Museum of Natural History; "Sustainable Energy" (2008)
Peabody Volunteer Enrichment Program Lecture; “Treasures of the Hall of Minerals, Earth, and Space” (2008)
HoMES lecture series, Peabody Museum of Natural History; “Treasures of the Hall of Minerals, Earth, and Space” (2009)
Yale Alumni Association Lecture; “Sustainable Energy and Yale” (2009)
Workshop leader for “The Art of Adornment: Jewelry in America from the Seventeenth Century to the Present” Symposium (Yale University Art Gallery) (2009)
O.C. Marsh Lecture Series, Yale Peabody Museum of Natural History; "Mysteries of the Hall of Minerals, Earth, and Space" (2009)
Student Host, Cheshire High School Job Shadow Program (2010)

Evergreen Woods Community Lecture Series, “The Hall of Minerals, Earth, and Space” (2010)
Faculty Leader, Association of Yale Alumni excursion to the Great Lakes (2010)
Connecticut Academy of Arts and Sciences lecture series: “A billion years of Earth history preserved in the Connecticut landscape” (22 Feb 2011)
Geological tour for public, Regional Water Authority property, Lake Chamberlain area, Bethany, Connecticut (11 Jun 2011)
Faculty Leader, Association of Yale Alumni excursion to the Canadian Rockies (25 Jun to 2 July 2011)
Yale University Women’s Organization lecture series, “The minerals and gems of Yale” (2 Nov 2011)
Faulkner Light Brigade Lecture Series, Town of Guilford, CT, “The Geological History of Connecticut” (21 Feb 2011)
North Haven Land Trust, North Haven, CT, “The Geology of the North Haven Land Trust Properties” (1 Jun 2013)
Evergreen Woods Community Lecture Series (20 Jun 2014)
Faculty Leader, Association of Yale Alumni excursion to the National Parks of the Southwest (23 Jun-2 Jul, 2015)
Whitney Center Community Lecture Series (31 Oct 2016)
Faculty Leader, Association of Yale Alumni excursion to Iceland (5-15 Aug 2017)
North Branford Land Conservation Trust, CT, “Stories in Stone” (3 Oct 2018)

Courses

G&G 100, Natural Hazards; **G&G 111**, Earth Materials and Processes I; **G&G205** Natural Resources and their Sustainability; **G&G 220**, Mineralogy and Petrology; **G&G 327**, Petrology; **G&G 328L**, Optical Mineralogy and Petrography; **G&G350/550**, Thermodynamics of Mountain Belts; **G&G615**, Fluid Flow and Chemical Reaction in Geologic Systems; **G&G 616**, Advanced Petrology; **G&G 753a, 753b**, Seminar in Petrology; Discussion leader for **CE 198a** "Perspectives on Science".

Selected Reviews

American Journal of Science
American Mineralogist
Chemical Geology
Contributions to Mineralogy and Petrology
Department of Energy
Earth and Planetary Science Letters
Economic Geology
European Journal of Mineralogy
G-cubed
Geochimica et Cosmochimica Acta
Geofluids
Geology
Geological Society of America Bulletin
Geological Society of America Abstracts with Programs
Geosphere
Journal of Geophysical Research
Journal of the Geological Society, London
Journal of Metamorphic Geology
Journal of Petrology

Journal of Sedimentary Petrology
Lithos
MacArthur Foundation
Mineralogy and Petrology
National Science Foundation
Natural Sciences and Engineering Research Council of Canada
Nature
Nature Geoscience
Proceedings of the National Academy of Sciences
Reviews of Geophysics
Science Advances
Tectonics
Yale University Press

Books

Thermodynamic Modeling of Geological Materials: Minerals, Fluids and Melts, Reviews in Mineralogy v. 17, edited by Carmichael, I.S.E., and Eugster, H.P.: reviewed in Economic Geology, v. 83, p. 1092 (1988).

Origins of Igneous Rocks, by Hess, P.C.: reviewed in Economic Geology, v. 84, p. 2320 (1989).

Metamorphism and Crustal Evolution of the Western United States (Rubey Volume VII), edited by W.G. Ernst: reviewed in the Journal of Sedimentary Petrology, v. 60, p. 805 (1989).

Basic Analytical Petrology, by Ragland, P.C.: reviewed in Economic Geology, v. 85, p. 1959-1960 (1990).

Frontiers in Geofluids, edited by Yardley, B.W.D., Manning, C.E., and Garven, G.: reviewed in American Mineralogist, v. 98, p. 1914 (2013).

Publications

Books or Parts of Books

Ague, J.J., 2000, Earth Forces, *in* Deford, D., editor, Flesh and Stone: Stony Creek and the age of Granite: Stony Creek, Leetes Island Books, 202 pp, p. 8-15. *Note:* this book was produced as part of an official White House Millennium project of local history, and was recognized by an Award of Merit, Connecticut League of History Organizations (2001)

Ague, J.J., 2003, Fluid Flow in the Deep Crust. *In* The Crust (ed. R.L. Rudnick), vol 3., *Treatise on Geochemistry* (eds. H.D. Holland and K.K. Turekian), Elsevier, Oxford, p. 195-228.

Philpotts, A. R., and Ague, J. J., 2009, Principles of Igneous and Metamorphic Petrology (2nd ed.): Cambridge, Cambridge University Press, 667 p. For more information, see: http://www.cambridge.org/catalogue/catalogue.asp?isbn=9780521880060

Emmanuel, S., Ague, J.J., and Walderhaug, O., 2011, Models and measurements of porosity and permeability evolution in a sandstone formation, *in* Bundschuh, J., ed., Geochemical and biogeochemical modeling in low- and high-temperature aquifers, CRC Press, Balkema, p. 235-252.

Ague, J.J., 2014, Fluid Flow in the Deep Crust. *In* Treatise on Geochemistry (eds. H.D. Holland and K.K. Turekian), 2nd Edition, vol 4, Elsevier, Oxford, p. 203-247.

Papers

1) Ague, J.J., and Morris, A.P., 1985, Metamorphism of the Müllerneset Formation, St. Jonsfjorden, Svalbard: Polar Research, v. 3, p. 93-106.

2) Ague, J.J., and Brimhall, G.H, 1987, Granites in the batholiths of California: Products of local assimilation and regional scale crustal contamination: Geology, v. 15, p. 63-66.
3) Ague, J.J., and Brimhall, G.H, 1988, Regional variations in bulk chemistry, mineralogy, and the compositions of mafic and accessory minerals in the batholiths of California: Geological Society of America Bulletin, v. 100, p. 891-911.
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8) Ague, J.J., 1991, Evidence for major mass transfer and volume strain during regional metamorphism of pelites: Geology, v. 19, p. 855-858.
9) Ague, J.J., and Brandon, M.T., 1992, Tilt and northward offset of Cordilleran batholiths resolved using igneous barometry: Nature, v. 360, p. 146-149.
10) Ague, J.J., 1994, Mass transfer during Barrovian metamorphism of pelites, south-central Connecticut, I: Evidence for composition and volume change: American Journal of Science, v. 294, p. 989-1057.
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12) Ague, J.J., Carpenter, K., and Ostrom, J.H., 1995, Solution to the *Hallopus* enigma?: American Journal of Science, v. 295, p. 1-17.
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Tassara, S. & Ague, J.J., submitted, Crustal assimilation drives the formation of copper-rich sub-arc cumulates.

Scientific Presentations

Author or co-author for work presented at numerous talks at national and international scientific meetings, and at University colloquia around the globe.

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