EMILY M. STEWART
Department of Earth, Ocean and Atmospheric Science
Florida State University
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PROFESSIONAL APPOINTMENTS:

Florida State University
Assistant Professor of Geology 2021-present
California Institute of Technology
Barr Foundation Postdoctoral Fellow 2020-2021
Yale University
Graduate Research/Teaching Fellow 2015-2020
Boston University
Graduate Teaching Fellow 2013-2015
U.S. Geological Survey, Reston
Student Intern 2013

EDUCATION:

Yale University, Ph.D. in Earth and Planetary Sciences 2020
Thesis: "*Rock metamorphism and the global carbon cycle"*
Boston University M.A. in Earth Sciences 2015
Thesis: "*Microstructural and tectonic applications of texturally controlled Sm-Nd garnet geochronology*"
Indiana University, B.S. in Geological Sciences with Highest Distinction 2013
Minor in Mathematics

PEER-REVIEWED PUBLICATIONS:

Stewart, E.M., & Ague, J.J. (2020). Pervasive subduction zone devolatilization recycles CO_2 into the forearc. *Nature Communications. 11* (1), 1-8.

Isson, T.T., Planavsky, N.J., Coogan, L., **Stewart, E.M.,** Ague, J.J., Bolton, E.W., Zhang, S., McKenzie, N.R., and Kump, L.R. (2020). Evolution of the Global Carbon Cycle and Climate Regulation on Earth. *Global Biogeochemical Cycles.* 34 (2).

Stewart, E.M., Ague J.J., Ferry, J.M., Tao, R.B., Schiffries, C.M., Isson, T.T., and Planavsky N.J. (2019). Carbonation and decarbonation reactions: implications for planetary habitability. *American Mineralogist Special Collection: Earth in Five Reactions.* 104 (10), 1369-1380.

Stewart, E.M., & Ague, J. J. (2018). Infiltration-driven metamorphism, New England, USA: regional CO_2 fluxes and implications for Devonian climate and extinctions. *Earth and Planetary Science Letters.* 489, 123-134.

Stewart, E. M., Baxter, E. F., & Ague, J. J. (2017). Initiation and duration of Grampian orogenesis constrained by refined Sm–Nd garnet geochronology of the Ballantrae ophiolite, Scotland. *Journal of the Geological Society*. 174 (6), 968-978.

IN REVIEW:

Aerden, D.G.A.M, Farrell, T., Baxter, E.F., **Stewart, E.M.,** & Bouybaouene, M.L. (in review at *Tectonics*). Tectonic evolution of the Betic-Rif orogen constrained by 3-D microstructural analysis and Sm-Nd dating of garnet porphyroblasts.

IN PREPARATION:

Stewart, E.M., Eiler, J.M., and Bucholz, C.E. (*in prep.)* Metamorphic reaction controls on carbonate clumped isotope equilibria.

GUIDEBOOKS:

Wintsch, R. P., Kunk, M. J., Aleinikoff, J.N., Roden-Tice, M., Stokes, M.R., **Stewart, E.M**., and Steinen, R.P. (2012). Temperature-time paths tie the tales of two forelands: The Narragansett and Hartford basins, in Thomas, M.A., ed. *State Geological and Natural History Survey of Connecticut, Guidebook No. 9,* C1-C32. ISBN 978-0-942081-19-0.

CONFERENCE ABSTRACTS:

Stewart, E.M., Eiler, J.M., and Bucholz, C.E. (2021) Barely metamorphic: carbonate clumped isotope thermometry applied to low-T reaction zones in marbles of the Alta Stock contact aureole, Utah**.** *AGU Fall Meeting* (format TBD).

Stewart, E.M., & Ague J.J. (2020) Observing decarbonation: field study reveals massive CO_2 release during subduction of ocean crust. *AGU Fall Meeting* (e-lighting presentation). **Invited**

Stewart, E.M., & Ague, J.J. (2019) Decarbonation of the subducting slab: observational constraints from the Cycladic Blueschist Unit, Greece. *AGU Fall Meeting* (oral presentation; awarded OSPA prize)

Stewart, E.M., & Ague, J.J. (2019) New Observational Constraints on Decarbonation During Subduction. *Deep Carbon 2019: Launching the Next Decade of Deep Carbon Science.* (poster presentation)

Ague, J.J., Keller, D.S., & **Stewart, E.M.** (2019) Current and future challenges in metamorphic petrology. *GSA Annual Meeting.*

Aerden, D.G.A.M., Farrell., T., Baxter, E.F., **Stewart, E.M.,** & Bouybaouene, M. (2019) Integrated microstructural analysis and Sm-Nd dating of garnet porphyroblasts from the Alpujarride-Sebtide complex and tectonic implications. *University of Granada Workshop: Alboran Domain and Gibraltar Arc.*

Stewart, E.M. (2019) Look at your rock: using detailed petrography to groundtruth thermodynamic modeling in the Wepawaug Schist, the Middletown Formation, and beyond. *GSA Northeast Section Meeting.* (oral presentation)

Stewart, E.M., & Ague, J.J. (2018) Tracing Fluid Infiltration and Resultant CO_2 Release in Subducted Lithologies of the Cycladic Blueschist Unit, Greece. *AGU Fall Meeting.* (poster presentation)

Stewart, E.M., & Ague J.J., (2018) The Acadian Metamorphic Carbon Flux and Devonian Climate. *Goldschmidt Geochemistry Conference.* (poster presentation)

Ague, J.J., & **Stewart, E.M.,** (2018) Decarbonation Reaction in Subduction Zones and Collisional Orogens. *Deep Carbon Observatory "Earth in Five Reactions" Workshop.*

Farrell, T.P., Baxter, E.F., Aerden, D.G.A.M., & **Stewart, E.M.** (2018) Investigating the Tectonic Significance of Foliation Intersection Axes (FIA) within Garnet using Sm-Nd Geochronology. *GSA Northeast Section Meeting.*

Aerden, D.G.A.M., Bouybaouene, M., Badreddine, I., Baxter, E.F., Farrell T.P, & **Stewart, E.M.** (2018) Tectonic evolution of the Betic-Rif orogen as recorded by FIA. *AAPG Workshop in Granada, Spain.*

Stewart, E.M., & Ague, J.J. (2016) Large-scale open-system behavior of carbon dioxide in the continental lithosphere deduced from closed-system modeling of metamorphic phase equilibria in the Wepawaug Schist, CT. *GSA Annual Meeting.* (oral presentation)

Stewart, E.M., Baxter, E.F., & Ague, J.J. (2015) Onset of Grampian orogenesis constrained by high precision Sm-Nd garnet age of the Ballantrae Ophiolite. *GSA Annual Meeting.* (poster presentation)

Stewart, E.M., Wintsch, R.P., & Fetherston, D. (2013) Interplay between strain and metamorphism in amphibolites of the Bronson Hill Terrane, CT. *GSA Northeast Section Meeting.* (oral presentation)

Stewart, E.M., Wintsch R.P., & Stokes M.R. (2012) Alleghanian Deformation and Fabric development in Amphibolites of the Bronson Hill Terrane, CT. *GAC-MAC Combined Meeting.* (poster presentation)

Stewart, E.M., Wintsch, R.P., & Stokes, M.R. (2012) Implications of Chemically Zoned Tschermakites in Amphibolites of the Bronson Hill Terrane, CT. *GSA Northeast Section Meeting.* (poster presentation)

HONORS AND AWARDS:

California Institute of Technology

Barr Foundation Prize Postdoctoral Fellowship

American Geophysical Union

Outstanding Student Presentation Award, AGU Fall Meeting 2019

Yale University

William E. Ford Prize for excellence in Mineralogy
Award for Excellence in Teaching

Boston University

Outstanding Teaching Fellow Award

Indiana University

Phi Beta Kappa
Faculty Scholarship Award (top graduating Senior in Dept. of Geological Sciences)
Junior Award (top Junior in Dept. of Geological Sciences)
Conoco-Phillips Field Camp Scholarship recipient
Professional Development Award (top Sophomore in Dept. of Geological Sciences)
Mineralogical Society of America Undergraduate Prize

Other

Nature Communications, 2020 Top 50 Earth, Environmental, and Planetary Sciences Articles
Journal of the Geological Society Early Career Award, Runner-Up

TEACHING EXPERIENCE:

Yale University Teaching Fellow:
Geology & Geophysics 111 "Dynamic Earth Laboratory" Fall 2015, Fall 2016

Boston University Teaching Fellow:
Earth Science 101 "Evolution of the Earth" Fall 2013
Earth Science 222 "Mineralogy" Fall 2013, Fall 2014
Earth Science 424 "Igneous and Metamorphic Petrology" Spring 2014, Spring 2015

COMMUNITY ENGAGEMENT:

"Ask-a-Geologist" Volunteer (2019 - 2020)
Visiting local pre-K schools for interactive presentations on geology
Crete Museum of Natural History Outreach (2018 – 2020)
Collaborating on the design of a traveling educational program about Aegean geology and the geologic carbon cycle
Peabody Museum Student Naturalist (2017- 2020)
Leading K-12 and university students in field experiences on Horse Island, CT
"Rocks Beneath Our Toes" (RoBOT) program (2013-2014)
Introducing High School students to lab- and field-based research at Boston University and surrounding area

SERVICE:

Reviewer for *Nat. Commun., Earth Planet. Sci. Lett., J. Geophys. Res. Solid Earth,* and *Chem. Geol.*
Grant proposal reviewer for Sloane Foundation
Yale University, Graduate Student Assembly Representative (2019 - 2020)
Yale University, President of the Dana Club (department-wide student organization) (2017-2018)

RESEARCH EXPERIENCE:

Clumped-isotope thermometry of talc formation in marble
Field Area: Alta, Utah
September 2020 – present — Advisors: Claire Bucholz and John Eiler
Postdoctoral Fellow — California Institute of Technology

Major Discourse: Metamorphic decarbonation and carbon cycling
Field Areas: New England, USA; Syros & Tinos Islands, Greece
August 2015 – August 2020 — Advisor: Professor Jay J. Ague
Ph.D. Candidate — Yale University

Minor Discourse: Paleomagnetism of Precambrian rocks
Field Areas: Northern Namibia; Transvaal Basin, South Africa
January 2016 – May 2018 — Advisor: Professor David A. Evans
Ph.D. Candidate — Yale University

M.A. Thesis: TIMS Sm-Nd garnet geochronology
Field Area: Betic Cordillera, Spain
August 2013 – August 2015 — Advisor: Professor Ethan F. Baxter
M.A. Student — Boston University

U-Pb geochronology of zircon
July 2013 – August 2013 — Supervisors: Dr. Ryan McAleer & Gregory Walsh
Student Intern — US Geological Survey, Reston, VA

Petrology and structure of Appalachian amphibolites
Field Area: New England, USA
August 2011 – May 2013 — Advisor: Professor Robert P. Wintsch
Undergraduate Researcher — Indiana University