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Department of Geology and Geophysics
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EDUCATION:

YALE UNIVERSITY, New Haven, CT
Ph.D. in Geology & Geophysics expected 2020
Thesis: “*Metamorphic decarbonation and the global carbon cycle*”

BOSTON UNIVERSITY, Boston, MA
M.A. in Earth Sciences 2015
Thesis: “*Microstructural and tectonic applications of texturally controlled Sm-Nd garnet geochronology*”
GPA: 4.0

INDIANA UNIVERSITY, Bloomington, IN
B.S. in Geological Sciences with Highest Distinction 2013
Minor in Mathematics
GPA: 3.99

PEER-REVIEWED PUBLICATIONS:

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. (accepted pending revision). Evolution of the Global Carbon Cycle and Climate Regulation on Earth. *Global Biogeochemical Cycles*.

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 CO₂ 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 PREPARATION:

Stewart, E.M., & Ague, J.J. (in prep). How much CO₂ do subducting slabs release? New constraints from the Cycladic Blueschist Unit, Greece.

Farrell, T., Baxter, E.F., Aerden, D.G.A.M., **Stewart, E.M.**, & Bouybaouene, M. (in prep). Dating Relative Plate Motion in the Betic Cordillera using Sm-Nd Garnet Geochronology.

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:

* = upcoming presentation

***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: Friday Dec. 13 at 2:40PM in Session V53A)

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 CO₂ 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:

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

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 - Present)

Visiting local pre-K schools for interactive presentations on geology

Crete Museum of Natural History Outreach (2018 – Present)

Collaborating on the design of a traveling educational program about Aegean geology and the geologic carbon cycle

Peabody Museum Student Naturalist (2017- Present)

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:

Graduate Student Assembly Representative (2019 - Present)

President of the Dana Club (department-wide student organization) (2017-2018)

Reviewer for *Earth and Planetary Science Letters*

Grant proposal reviewer for Sloane Foundation

RESEARCH EXPERIENCE:

Major Discourse: Metamorphic decarbonation and carbon cycling

Field Areas: New England, USA; Syros & Tinos Islands, Greece

August 2015 – Present

Ph.D. Candidate

Advisor: Professor Jay J. Ague
Yale University

Minor Discourse: Paleomagnetism of Precambrian rocks

Field Areas: Northern Namibia; Transvaal Basin, South Africa

January 2016 – May 2018

Ph.D. Candidate

Advisor: Professor David A. Evans
Yale University

Thesis: TIMS Sm-Nd garnet geochronology

Field Area: Betic Cordillera, Spain

August 2013 – August 2015

M.A. Student

Advisor: Professor Ethan F. Baxter
Boston University

U-Pb geochronology of zircon

July 2013 – August 2013

Student Intern

Supervisors: Dr. Ryan McAleer & Gregory Walsh
US Geological Survey, Reston

Petrology and structure of Appalachian amphibolites

Field Area: New England, USA

August 2011 – May 2013

Undergraduate Researcher

Advisor: Professor Robert P. Wintsch
Indiana University