



## CURRICULUM VITAE

### **VERONIQUE LE ROUX, Ph.D.**

Professor, ENSG & CRPG

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### Appointments

#### *Current*

- 2024 – Present**      **Professor**, Centre de Recherches Pétrographiques et Géochimiques / Ecole Nationale Supérieure de Géologie, (FR)
- 2024 – Present**      **Adjunct Scientist**, Woods Hole Oceanographic Institution (US)
- 2022 – Present**      **Ocean Exploration Advisory Board**, NOAA, US Department of Commerce.  
<https://oeab.noaa.gov/board-members/>

#### *Past faculty appointments*

- 2022 – 2023**      **Chair of Joint Committee for Marine Geology and Geophysics**, MIT-WHOI Joint Program (doctoral program)
- 2021 – 2023**      **Associate Scientist with Tenure**, Woods Hole Oceanographic Institution (US)
- 2013 – 2023**      **Joint Program Faculty**, Massachusetts Institute of Technology
- 2020 – 2021**      **Awarded Visiting Scholar at SCIENCE 2020**, Copenhagen University, Department of Geosciences and Natural Resource Management, Section for Geology (DK)
- 2017 – 2021**      **Associate Scientist**, Woods Hole Oceanographic Institution (US)
- 2013 – 2017**      **Assistant Scientist**, Woods Hole Oceanographic Institution (US)

#### *Postdoctoral appointments*

- 2011 – 2013**      **Post-doctoral Scholar**, Woods Hole Oceanographic Institution (US).
- 2009 – 2011**      **Post-doctoral Fellow**, Rice University (US).

#### *PhD student appointments*

- 2005 – 2008**      **Teaching Assistant**, University of Montpellier (FR)

### Academic Preparation

- 2009**      Ph.D. Macquarie University (AU)
- 2008**      Ph.D. Montpellier University (FR)
- 2005**      Master degree (II) Earth Sciences, Montpellier University (FR)
- 2004**      Master degree (I), Earth & Planetary Sciences, University of Nantes (FR)
- 2003**      Bachelor degree, Earth & Planetary Sciences, University of Nantes (FR)

### Research Interests

Physical and geochemical evolution of the Earth's upper mantle and crust; Volatile budgets in mantle and crustal materials (H<sub>2</sub>O, CO<sub>2</sub>, halogens); Material transfer in subduction zones; Melt-rock and fluid-rock reactions; Arc and ridge magmatism; Novel developments in Earth Sciences by micro-CT

## Peer-reviewed publications

Total citations **2464**

[https://scholar.google.com/citations?hl=en&user=QfOO7jcAAAAJ&view\\_op=list\\_works&sortby=pubdate](https://scholar.google.com/citations?hl=en&user=QfOO7jcAAAAJ&view_op=list_works&sortby=pubdate)

\*Equal 1<sup>st</sup> authorship; \$Undergraduate advisee; #Graduate advisee; ##Postdoctoral advisee

Shu Y., Nielsen S.G., **Le Roux V.**, Horner T., Ostrander C.M., Santiago Ramos D., Blusztajn J., Auro M., Leat P.T. Mélange dehydration and melting beneath South Sandwich Island arc. *In review*.

#Codillo E., **Le Roux V.**, Mélange melting predominant in cold and mature arcs. *Submitted*.

#Anderson O. E., Jackson M. G., ##Pamukçu A., Rose-Koga E. F., **Le Roux V.**, Klein F., Koga K., Gaetani g., Price A. A. Extensive H<sub>2</sub>O degassing in deeply erupted submarine glasses inferred from Samoan melt inclusions: The EM2 mantle source is damp, not dry. (2024) Chemical Geology <https://doi.org/10.1016/j.chemgeo.2024.121979>

Bernhard J.M., Fisher L., Murphy Q., \$Sen L., Yeh H., Louyakis A., Goma F., Reilly M., Batta-Lona P., Bucklin A., **Le Roux V.**, Visscher P.T. (2023) Transition from stromatolite to thrombolite fabric: Role for reticulopodial protists in lake microbialites of a Proterozoic ecosystem analog?. Frontiers in Microbiology doi: 10.3389/fmicb.2023.1210781

#Codillo E., **Le Roux V.**, Klein B., Behn M.D., Marschall H., Bebout G. (2023) The ascent of subduction zone mélanges: experimental constraints on mélange rock densities and solidus temperatures. Earth and Planetary Science Letters <https://doi.org/10.1016/j.epsl.2023.118398>

Gruber B., Chin E.J., **Le Roux V.**, (2023) Evolution of microstructural heterogeneity in the deep arc lithosphere during delamination. Journal of Geophysical Research e2022JB025661

Shu Y, Nielsen S.G., **Le Roux V.**, Wörner G., Blusztajn J., Auro M., Sources of dehydration fluids underneath the Kamchatka arc. (2022) Nature Communications <https://doi.org/10.1038/s41467-022-32211-5>

#Urann B.M., **Le Roux V.**, Jagoutz O., Müntener O., Behn M. D., Chin E. J. High water content of arc magmas recorded in cumulates from subduction zone lower crust. (2022) Nature Geoscience, <https://doi.org/10.1038/s41561-022-00947-w>.

Shu Y., Nielsen S.G., **Le Roux V.**, Blustajn J., Guo S., Huang F., Thallium isotope compositions of subduction-zone fluids: Insights from ultra-high pressure eclogites and veins in the Dabie terrane, eastern China. (2022) Chemical Geology. <https://doi.org/10.1016/j.chemgeo.2022.120843>

**Le Roux V.**, #Urann B.M, Brunelli D., Bonatti E., Cipriani A., Demouchy S., Monteleone B. (2021) Post-melting hydrogen enrichment in the oceanic lithosphere. Science Advances. 7 (24), eabf6071

Jones M. R., Soule A., Liao Y., Brodsky H., **Le Roux V.**, Klein F. (2020) Quantitative vesicle analyses and total CO<sub>2</sub> reconstruction in mid-ocean ridge basalts. Journal of Volcanology and Geothermal Research. doi.org/10.1016/j.jvolgeores.2020.107109.

\*Klein F., \***Le Roux V.** (2020), Quantifying the Volume Increase and Chemical Exchange During Serpentinization. Geology. doi.org/10.1130/G47289.1

*Invited*. #Urann. B.M., **Le Roux V.**, John T., Beaudoin G.M., Barnes J.D. (2020), The distribution and abundance of halogens in eclogites: an in situ SIMS perspective of the Raspas Complex (Ecuador). American Mineralogist 105 (3): 307–318, doi 10.2138/am-2020-6994.

Shinevar W.J., Mark H.F., Clerc F., Codillo E.A., Gong J., Olive J.-A., Brown S.M., Smalls P.T., Liao Y., **Le Roux V.**, Behn M.D. (2019), Causes of oceanic crustal thickness oscillations along a 74-Myr Mid-Atlantic Ridge flow line. Geochemistry Geophysics Geosystems (G<sup>3</sup>). doi.org/10.1029/2019GC008711

**Le Roux V.**, Liang Y. (2019), Ophiolitic pyroxenites record boninite percolation in subduction zone mantle. Minerals 9, 565; doi:10.3390/min9090565

- Miller W.G.R., MacLennan J., Shorttle O., Gaetani G.A., **Le Roux V.**, Klein F. (2019), Estimating the carbon content of the deep mantle with Icelandic melt inclusions. Earth and Planetary Science Letters 523, 115699
- Jones M. R., Wanless V. D., Soule S. A., Kurz M. D., Mittelstaedt E., Fornari D. J., Curtice J., Klein F., **Le Roux V.**, Brodsky H., Péron S., Schwartz D.M. (2019), New constraints on mantle carbon from Mid-Atlantic Ridge popping rocks. Earth and Planetary Science Letters 511, 67-75
- \*\$Codillo E., \***Le Roux V.**, Marschall H., (2018) Arc-like magmas generated by mélange-peridotite interaction in the mantle wedge. Nature Communications 9, 2864
- Nielsen S. G., Horner T. J., Pryer H. V., Blusztajn J., Shu Y., Kurz M. D. and **Le Roux V.**, (2018) Barium isotope evidence for pervasive sediment recycling in the upper mantle. Science Advances, 4, no. 7, doi: 10.1126/sciadv.aas8675
- Jones M., Soule S.A., Gonnermann H., **Le Roux V.**, Clague D. (2018) Degassing-based constraints on ascent and emplacement dynamics during the 2011 eruption of Axial Seamount. Earth and Planetary Science Letters, doi.org/10.1016/j.epsl.2018.04.044
- ##Cruz-Urbe A., Marschall H., Gaetani G., **Le Roux V.** (2018) Generation of alkaline magmas in subduction zones by melting of mélange diapirs. Geology 46 (4): 343-346
- #Urann B.M., **Le Roux V.**, \$Hammond K., Marschall H., Lee C.-T., Monteleone B. (2017) Fluorine and chlorine in mantle minerals and the halogen budget of the Earth's mantle. Contributions to Mineralogy and Petrology doi 10.1007/s00410-017-1368-7
- Le Roux V.**, Nielsen S.G., ##Sun C., Yao L. (2016) Dating layered websterite formation in the lithospheric mantle. Earth and Planetary Science Letters 454 pp. 103–112
- Miller K.J., Zhu W., Montesi L., Gaetani G., **Le Roux V.**, Xiao X., (2016) Experimental evidence for melt partitioning between olivine and orthopyroxene in partially molten harzburgite. JGR Solid Earth 121 doi:10.1002/2016JB013122
- Le Roux V.**, Dasgupta R., Lee C.-T.A. (2015) Recommended mineral-melt partition coefficients for FRTEs (Cu), Ga and Ge during mantle melting. American Mineralogist 100 pp. 2533–2544
- Le Roux V.**, Dick H, Shimizu N. (2014) Tracking flux melting and melt percolation in supra-subduction peridotites (Josephine Ophiolite, USA). Contributions to Mineralogy and Petrology 168 pp. 1–22
- Lee C.-T. A., Luffi P., Chin E. J., Bouchet R., Dasgupta R., Morton D.M., **Le Roux V.**, Yin Q.-Z., Jin D. (2012) Copper systematics in arc magmas and implications for crust-mantle differentiation Science 336 pp. 64–68
- Le Roux V.**, Dasgupta R., Lee C.-T. A. (2011) Mineralogical heterogeneities in the Earth's mantle: constraints from Mn, Co, Ni and Zn partitioning during partial melting. Earth and Planetary Science Letters 307 pp. 395–408
- Lee, C.-T. A., Luffi, P., **Le Roux, V.**, Dasgupta, R., Albarède F., Leeman W.P. (2010) The redox state of arc mantle using Zn/Fe systematics. Nature 468 pp. 681–685
- Le Roux V.**, Lee C.-T. A., Turner S.J. (2010) Zn/Fe systematics in mafic and ultramafic systems: implications for detecting major element heterogeneities in the Earth's mantle Geochimica et Cosmochimica Acta 74 pp. 2776–2796
- Le Roux V.**, Bodinier J.-L., Alard O., O'Reilly S.Y., Griffin W.L. (2009) Isotopic decoupling during porous melt flow: A case-study in the Lherz peridotite. Earth and Planetary Science Letters 279 pp. 76–85
- Le Roux V.**, Tommasi A., Vauchez A. (2008) Feedback between melt percolation and deformation in an exhumed lithosphere-asthenosphere boundary. Earth and Planetary Science Letters 274 pp. 401–413
- Le Roux V.**, Bodinier J.-L., Tommasi A., Alard O., Dautria J.-M., Vauchez A., Riches A.J.V. (2007) The Lherz spinel lherzolite: refertilized rather than pristine mantle, Earth and Planetary Science Letters 259 pp. 599–612

## Research Grants

### \$ Principal Investigator

**2023-2025** NASA Development of methods allowing measurement of seven metal stable isotope ratios in material returned from primitive asteroids (Nielsen, Le Roux, Burton) \$516,009

**2023-2026** National Science Foundation, Marine Geology and Geophysics, Strength of the Oceanic Lower Crust: New Experimental and Microstructural Constraints (Goddard, Cross, Le Roux) \$641,214

**2021-2024** National Science Foundation, Marine Geology and Geophysics (Cruise proposal), *Collaborative Research: Magmatic and Mechanical Extension of the Challenger Deep Forearc Segment: Insights into Subduction Initiation* (Stern, Le Roux, Chin, Dygert) \$119,974

**\$2020:** Independent Research And Development Awards, *Effect of alteration on the volatile contents of mantle rocks* (Le Roux) \$82,869

**\$2019-2022:** National Science Foundation, Geophysics program/Petrology and Geochemistry program, *Collaborative Research: Voyage to the bottom of Arcs: interplay between water, deformation, and lower crustal stability* (Le Roux, Chin, Behn), \$790,939

**\$2019-2022:** National Science Foundation, Geoprisms program, *Collaborative Research: Melange-peridotite Interactions in the Source of Arc Magmas* (Le Roux & Behn), \$546,403

**\$2019-2021:** National Science Foundation, Petrology and Geochemistry Program, *Halogen budget of subducted eclogites: the in-situ perspective* (Le Roux), \$363,064

**\$2018-2020:** The Andrew W. Mellon Foundation Award for Innovative Research, *Magma Pulses in the Abyss* (Le Roux), \$64,078

**2017-2019:** National Science Foundation, Antarctic Earth Sciences, *Collaborative Research: Determining Magma Storage Depths and Ascent Rates for the Erebus Volcanic Province, Antarctica Using Diffusive Water Loss from Olivine-hosted Melt Inclusion* (Gaetani, Le Roux, Sims, Wallace), \$499,907

**\$2016-2019:** Ocean Exploration Institute, *What is the transport mechanism of sediments in subduction zones?* (Le Roux), \$74,984

**\$2016-2019:** National Science Foundation, Petrology and Geochemistry Program, *Quantifying the Volume Changes During Serpentinization of Peridotite using Hydrothermal Laboratory Experiments and X-ray Microtomography* (Klein & Le Roux), \$350,000

**2016-2018:** National Science Foundation, Marine Geology and Geophysics Program. *Collaborative Research: Does Calcification By Paleoceanographically Relevant Benthic Foraminifera Provide A Record Of Localized Methane Seepage?* (Bernhard, Martin, Le Roux), \$218,355

**2016-2019:** National Science Foundation, Geobiology and Low-Temperature Geochemistry Program. *Collaborative Research: Alteration of microbially-produced carbonate rock by unicellular predators to better understand early Earth's dominant ecosystem* (Visscher, Bernhard, Le Roux), \$255,000

**\$2017:** Independent Research And Development Awards Developing in-situ trace element analysis capabilities in silicates at WHOI, \$74,758

**\$2015-2017:** National Science Foundation, Petrology and Geochemistry Program, *F and Cl in peridotite minerals: analytical development and applications to fluid cycling in the Earth's mantle* (Le Roux, Monteleone, Shimizu), \$298,072

**2015-2017:** Ocean Exploration Institute, *A chronometer for magmatic processes at mid-ocean ridges* (Gaetani & Le Roux), \$59,032

**\$2015:** Independent Research And Development Awards *Micro-tomography at WHOI: Test Scans and 3-D Data Processing of Geological and Biological Samples* (Le Roux) \$58,297

**\$2014-2016:** Andrew W. Mellon Foundation Award for Innovative Research, *Connecting Mineral physics and Geochemistry* (Le Roux), \$59,744

**\$2013-2015:** Deep Ocean Exploration Institute, *Innovative tracers of hydrous melting in the Earth's mantle* (Le Roux & Shimizu), \$71,433

**\$2012-2014:** National Science Foundation, Petrology and Geochemistry Program, *Widespread pyroxenite layering in the mantle*, (Le Roux & Tivey), \$259,097

**\$2011-2013:** Deep Ocean Exploration Institute, *A new experimental approach to constraining H<sub>2</sub>O cycling in subduction zones*, (Le Roux & Gaetani), \$67,590

**\$2011-2012:** Deep Ocean Exploration Institute Scholarship (Le Roux), WHOI, \$62,000

**\$2007-2009:** International Macquarie University Research excellence Scholarship (MQRES), Macquarie University, AUD \$19,231/year

**\$2006-2008:** 'Aide à la mobilité internationale' (Research funds for international collaborations), Ministère délégué à l'enseignement supérieur et à la recherche, 5100 €

## **Formal presentations**

*94 lead or contributed presentations at international conferences and institution seminars since 2005*

### *Invited talks*

2023. University of Texas at Austin, USA

2022. Curtin University, Perth, Australia

2022. ISTO, Orleans, France

2021. Goldschmidt Conference, Lyon, France

2020. Centre de Recherches Pétrographiques et Géochimiques, France

2020. Copenhagen University, Denmark

2019. European Institute for Marine Studies, Geosciences Ocean, Brest, France

2019. Laboratoire Magmas et Volcans, Clermont-Ferrand, France

2019. Geosciences Environnement Toulouse, France

2019. Geosciences Montpellier, France

2019. Water in the mantle workshop, Lamont Doherty Earth Observatory, USA

2018. Boston College, USA

2018. Aarhus University, Denmark

2018. California Institute of Technology, USA

2015. American Geophysical Union, Fall Meeting, San Francisco, USA

2015. Massachusetts Institute of Technology, USA

2015. Goldschmidt Conference, Prague, Czech Republic

2014. Ecole Normale Supérieure de Lyon, France

2013. Bayerisches Geoinstitut, Germany

2012. Unité Mixte de Recherche Domaines Océaniques, Brest, France

2010. University of New Mexico, USA

2010. Wood Hole Oceanographic Institution, USA

2010. Goldschmidt Conference, Knoxville, USA

2010. Geosciences Montpellier, France

2010. Ecole Normale Supérieure de Lyon, France

2009. American Geophysical Union, Fall Meeting, San Francisco, USA

## **Supervision and mentoring**

### *Postdoctoral collaborators*

**2023** : Subhajit Ghosh (main advisor Cross)

**2023** : Molly Anderson (NSF fellow, main advisor Barry)

**2022** : Rellie Goddard (main advisor Cross)

**2021** : Benjamin Urann

**2017 – 2019:** Emily Cooperdock (WHOI scholar)

**2016 – 2019:** Ayla Pamukcu

**2015 – 2016:** Chenguang Sun (WHOI scholar)

**2015** Alicia Cruz-Urbe (main advisor Marschall)

#### *PhD student advisees*

**2023 – present:** Namitha Kumar (MIT/WHOI Joint Program)

**2017 – 2022:** Emmanuel Codillo (MIT/WHOI Joint Program)

**2015 – 2020:** Benjamin Urann (MIT/WHOI Joint Program)

**2013.** Ning Zhao (MIT/WHOI Joint Program; main advisor Keigwin) – Geodynamics Class project, Spring

#### *Undergraduate/Master student advisees*

**2022:** Namitha Kumar – U. of Michigan — Summer Student Fellow Program student (3 mo)

**2020:** Leena Sen - San Jose State U. (USA) — Summer Student Fellow Program student (3 mo; main adviser Bernhard)

**2020:** Hugo Lestrelin — Ecole Normale Supérieure Paris (France) — Guest Student Fellow (1 mo due to covid-19; planned for 6 months)

**2019:** Alexandra Nordyke — Bennington College (USA) — Summer Student Fellow (3 mo; main advisor Gaetani)

**2017 – 2018:** Taylor Hough — Brown U. (USA) — Summer Student Fellow and Master's thesis

**2016:** Nadine Doiron — UMass Amherst — NENIMF summer student (3 mo; main advisor Gaetani)

**2015 – 2016:** Emmanuel Codillo — U. of Philippines — Guest student (9 mo)

**2015.** Emma Soucy — Northeastern U. (USA) — Co-op internship program (6 mo)

**2015.** Keiji Hammond — Northeastern U. (USA) — Co-op internship program (6 mo)

**2015.** Marienel Basiga — San Jose State U. (USA) — Summer Student Fellow Program student (3 mo)

**2014.** Marienel Basiga — San Jose State U. (USA) — Partnership Education Program student (minority program; 3 mo)

**2013.** Jeremy Slaugenwhite — U. of Houston (USA) — Guest student (1 month)

#### *Other Guest or Short-term students*

**2019–2020:** Collaboration with PhD student Olivia Anderson (UCSB, USA); **Feb. 2018:** Guest Ph.D. students Stamatis Flemetakis and Dominik Loroeh (U. of Muenster, Germany); **Dec. 2017:** Guest undergraduate student Megan Reilly (Northeastern U.); **May 2017:** Guest Ph.D. student Manon Bickert (IPGP, France)

## **Synergistic Activities**

#### Journal Reviewer:

American Mineralogist; American Journal of Science; Chemical Geology; Communications Earth & Environment; Contributions to Mineralogy and Petrology; Earth and Planetary Science Letters; Earth Science Reviews; Elements; Geochimica et Cosmochimica Acta; Geochemical Perspectives Letters; Geochemical Society of America Special Papers; Geochemistry Geophysics Geosystems (G<sup>3</sup>); Geology; Geophysics Research Letters; Journal of Geophysics Research-Solid Earth; Journal of Petrology; Lithos; Mineralogy and Petrology; Nature Communications; Nature Geoscience; Nature Scientific Reports; Science Advances; Tectonophysics

#### Panels and committees (International)

**2023 – Present** Reviewer for Swiss National Science Foundation

**2023** Goldschmidt session co-convenor

**2022 – Present** Ocean Exploration Advisory Board, National Oceanic and Atmospheric Administration (NOAA), US Department of Commerce  
<https://oeab.noaa.gov/board-members/>

**2022** AGU session Chair (Research, Exploration, and Challenges in the Hadal Zone and Deep Ocean Trenches)



- 2021 – Present** Reviewer for National Research and Development Agency (ANID) of the Ministry of Science, Technology, Knowledge and Innovation of Chile (FONDECYT National Projects Competition)
- 2018 – Present** Reviewer for Deutsche Forschungsgemeinschaft, German Research Foundation
- 2010 – Present** Reviewer for National Science Foundation (USA): NSF-EAR Petrology and Geochemistry, Frontier Research in Earth Sciences (FRES), Collaborative studies of the Earth Interior (CSEDI); NSF Tectonics; NSF Polar Programs
- 2020** Panel member, National Science Foundation, USA (*Remote*)
- 2018** Goldschmidt session co-convener (Igneous Processes throughout the Arc Crustal Column and Oceanic Mantle)
- 2015** Goldschmidt session co-convener (How chalcophile are the chalcophile elements?)
- 2015** AGU session co-convener (Endogenous mantle melting: petrology and geophysics)
- 2015** AGU session co-convener (The Ophiolite-Subduction Connection: Using peridotites as analogs for subduction zone mantle)
- 2015** AGU session co-convener (Melt and Liquids in Earth and Planetary Interiors)
- 2014** Panel member, National Science Foundation
- 2013** Reviewer for ETH Zurich Research Commission
- 2013** Geodynamics program co-organizer (WHOI). Theme: ‘Simulating the Earth in the lab’ <http://www.whoi.edu/main/2013-geodynamics-program>
- 2013** AGU session co-convener (Deformation Processes: Microstructure, Rheology, and the Effects of Fluids)
- 2009–2011** Reading group organizer: Petrology/Geochemistry (Rice University; 2009–2010); Subduction Zones (WHOI; 2011)
- 2010** Goldschmidt session co-convener (New and Old Paradigms on the Origin and Evolution of Continental Lithosphere)

Institution and departmental service (WHOI):

- 2023 – Present** Organizer of bi-monthly department gatherings/seminars
- 2023 – Present** Mentoring committee member for Assistant Scientist Y. Liao
- 2022 – Present** Chair of MIT-WHOI Joint Committee for Marine Geology & Geophysics (PhD program oversight)
- 2022** Chair of Ad-hoc promotion committee; MC&G Department
- 2020 – Present** Mentoring committee member for Assistant Scientist A. Cross
- 2016 – Present** NENIMF ion microprobe steering committee
- 2016 – 2022** Member of MIT-WHOI Joint Committee for Marine Geology & Geophysics (PhD program oversight)
- 2021** Merit review committee (employee performance in G&G department)
- 2021** Search committee for Deep Submergence Faculty position
- 2019** Substitute for Education Coordinator of MIT/WHOI PhD program (2 months)
- 2018** WHOI Inter-disciplinary award proposal review committee
- 2017** Search committee for Vice-President of Academic Program and Dean
- 2017** Search committee for Geochemistry and Petrology Faculty position
- 2016 – 2017** WHOI women’s committee
- 2016** Geology and Geophysics Department Chair transition committee
- 2016** Search committee for Geophysics Faculty position
- 2016** WHOI Catalyst program, proposal review panel
- 2016** Visioning committee for Vice-President of academic programs and Dean
- 2015 – 2016** Department representative, Summer Student Fellowship committee

Thesis committees (excluding own students):

- 2022** Chair of General examination committee, MIT/WHOI PhD student Lily Sandborn

**2022** Chair of General examination committee, MIT/WHOI PhD student Megan Gillen  
**2020 – Present** PhD Thesis committee, MIT student Cassandra Seltzer  
**2020** Thesis proposal committee, MIT student Cassandra Seltzer  
**2020** General examination committee, MIT student Cassandra Seltzer  
**2019 – Present** PhD Thesis committee, MIT/WHOI PhD student Fiona Clerc  
**2019** Thesis proposal committee, MIT/WHOI PhD student Fiona Clerc  
**2019** Chair of General examination committee, MIT/WHOI PhD student Fiona Clerc  
**2017 – 2019** PhD Thesis committee, MIT/WHOI PhD student Meghan Jones  
**2017** Thesis proposal committee, MIT/WHOI PhD student Meghan Jones  
**2017** General examination committee, MIT/WHOI PhD student Meghan Jones  
**2017** General examination committee, MIT/WHOI PhD student Gabriela Serrato  
**2017** General examination committee, MIT/WHOI PhD student William Shinevar  
**2017** Chair of PhD defense, MIT/WHOI PhD student Emily Sarafian

### Analytical and technical skills

EPMA: CAMECA SX 100. CAMECA SX 50, JEOL JXA-733 Superprobe; SIMS: Cameca IMS 1280 and 3f; HIGH P-T EXPERIMENTS: Piston cylinder, 1-atm furnace; ICPMS and LA-ICPMS: VG Plasmaquad II Turbo, Agilent 7500 ICPMS, ThermoFinnigan Element II Sector ICP-MS ; X-RAY MICROTOMOGRAPHY: Skyscan 1272 micro-CT; Synchrotron; 3D Microtomography modeling: Avizo software; Skyscan reconstruction, analysis and visualization software (CtAn; CtVox; CTVol; NRecon; Dataviewer).

### Field experience

#### Scientific cruises

2024. Collaborative Research: Magmatic and Mechanical Extension of the Challenger Deep Forearc Segment: Insights into Subduction Initiation. *Ship TBD* (Guam, US-Guam, US)

2017. SCARF Research Cruise AR23-02; Geophysics measurements of seafloor bathymetric, magnetic and gravimetric properties across the Atlantic Ocean. *R/V Neil Armstrong* (Ponta Delgada, PT-Woods Hole, US)

#### Fieldwork on land

Introduction to field mapping in sedimentary terrains (France)

Volcanism and Metamorphism (Central Massif, France)

Alpine Ophiolite (Corse, France)

Peridotite Massifs of the Pyrenees (France)

Regular field trips over 3 years; Regular field trips with undergraduate students (5–6 times/year) — Volcanism in South of France

Conference field trip: Volcanism of Mount Shasta and Shear zones in Josephine Peridotite (USA)

Mantle xenoliths in cinder cones (Colorado Plateau, USA)

Volcanism in the Azores (Portugal)

Peridotites and pyroxenites in the Josephine Ophiolite (USA)

Pyroxenites in the Pyrenean Massifs (France)

### Teaching and Outreach

**2023.** Mariana Trench Studies. A cross-institution, multi-lecturers, 1 semester remote class, that focuses on the petrological, tectonic, geochemical, and hydrothermal processes occurring in the Mariana trench, linked to our 2024 cruise. Open to undergraduates, graduates, and postdocs.

**2023.** Speaker for the Proposal Club. A course on how to write and design proposals, geared for postdocs

**2022.** Speaker for the Proposal Club. A course on how to write and design proposals, geared for postdocs



**2022.** Press releases in collaboration with WHOI and MIT media departments <https://www.whoi.edu/press-room/news-release/arc-volcanoes-are-wetter-than-previously-thought-with-scientific-and-economic-implications/> ; <https://news.mit.edu/2022/magma-tectonic-collision-zones-wetter-0526>

**2021.** *Remote.* Speaker for the Proposal Club. A course on how to write and design proposals, geared for postdocs

**2021.** *Remote.* Guest teacher for Geol 311 Igneous Petrology at Western Colorado University (undergraduate)

**2018–2019:** reading seminar Geochemistry/Petrology

**2018.** 3-D models hands-on activities for visually impaired-students (7<sup>th</sup> to 12<sup>th</sup> grade), WHOI, MA

**2018.** ‘Inside the Earth’ presentation and hands-on activities — pre-K class, Woods Hole Daycare Co-op, MA

**2018:** Interview for ‘Who is WHOI’ short documentary about WHOI. <https://vimeo.com/292046329>

**2018.** ‘Forams’ hands-on activities for visually impaired-students (7<sup>th</sup> to 12<sup>th</sup> grade) — “The Very Big and the Very Small” Perkins School for the Blind, MA

**2017.** Summer Student Fellow Program Lecturer (undergraduate) – *Travel inside the deep Earth*

**2016.** 12.703 MIT/WHOI Presenting Scientific Research (graduate)

**2016.** ‘Inside the Earth’ presentation and hands-on activities — pre-K class, VNA child care center, MA

**2015–2018:** Member of the *Partnership program* between WHOI scientists and Trustees, which encourages dialogue that enhances the understanding of Trustees and Members about WHOI science and culture

**2015.** 12.703 MIT/WHOI Presenting Scientific Research (graduate)

**2015.** Summer Student Fellow program Lecturer (undergraduate) – *Geology going 3-D: new prospects for Earth Sciences*

**2015.** Maria Barrera – Falmouth Academy (USA), volunteer internship (2 months)

**2015.** Natasha Garland– Falmouth Academy (USA), volunteer internship (2 months)

**2014.** Chris Connolly – Falmouth High School (USA) — School-to-Careers internship program (3 months)

**2014.** Summer Student Fellow program Lecturer (undergraduate) – *Travel inside the deep Earth*

**2013.** 12.753 MIT/WHOI Geodynamics Class (graduate) – *Experiments: simulating the Earth in the Lab*

**2009–2010:** Lectures at Rice University – geochemistry and thermodynamics (graduate)

**2005–2008:** Teaching Assistant (‘Monitorat’) at Montpellier University (64 hours of teaching/2 classes/ per year/ 3 years; igneous, metamorphic and sedimentary petrology).

## Awards and Recognition

**2020** Visiting researcher, ‘SCIENCE 2020’ award, Copenhagen University, Department of Geosciences and Natural Resource Management, Section for Geology (Copenhagen, DK)

**2020** Professor qualification (France)

**2011** Deep Ocean Exploration Institute Scholarship, WHOI

**2007** Bourse Lavoisier Cotutelle (Salary funds, European scholarship for international collaborations)

**2007** International Macquarie University Research excellence Scholarship (MQRES), Macquarie University

**2004** Master degree French scholarship for highly ranked students

## Languages

French (Native proficiency); English (Full professional proficiency); Danish (Intermediate working proficiency)