CURRICULUM VITAE

NATALIE H. RAIA

School of Information
University of Arizona
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RESEARCH INTERESTS

Digital archival and management of geomaterials; cyberinfrastructure for the earth sciences; geochemical data standards; natural history collections; geochemistry; geoinformatics

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PROFESSIONAL APPOINTMENTS

2023 – present **Postdoctoral Research Associate** I
School of Information, University of Arizona

2019 - 2020 **Predoctoral Fellow, Department of Mineral Sciences**
National Museum of Natural History, Smithsonian Institution

EDUCATIONAL BACKGROUND

2023 **Ph.D.**, Earth Sciences (Metamorphic Geology and Tectonics)
University of Minnesota- Twin Cities
Records of fluid-rock interaction in an oceanic subduction complex
Co-advisors: Donna L. Whitney, Christian Teyssier

2016 **B.S.**, Geological Sciences (with Special Honors)
The University of Texas at Austin
Tectonic origin of serpentinites on Syros, Greece: Geochemical signatures of seafloor serpentinization in a HP/LT subduction complex
Advisor: Jaime Barnes

2016 **B.A.**, Plan II Liberal Arts Honors
The University of Texas at Austin

ADDITIONAL RESEARCH EXPERIENCE

2017 (3 months) Research Assistant II, High-Temperature Stable Isotope Lab
Jackson School of Geosciences, University of Texas at Austin

2016 (6 weeks) Misasa International Student Internship Program
Institute for Planetary Materials, Okayama University, Japan
Major and trace element distribution of Howardite: homogeneity and heterogeneity of regolith on 4 Vesta

2015 (5 months) Undergraduate Exchange Student, Research School of Earth Sciences
Australian National University, Canberra, Australia

2014 (2 months) Undergraduate Researcher, Juneau Icefield Research Program
University of Alaska Southeast, Juneau, Alaska, USA
Isotopic signatures of rain and snow in the Juneau Icefield snowpack

2013 – 2016 Undergraduate Research Assistant, High-Temperature Stable Isotope Lab
Jackson School of Geosciences, University of Texas at Austin

SELECT AWARDS, FELLOWSHIPS, AND DISTINCTIONS

State/National

2019 Big 10 Predoctoral Fellowship, Smithsonian Institution
2019 Honorable Mention, National Science Foundation Graduate Research Fellowship
2017 Honorable Mention, National Science Foundation Graduate Research Fellowship
2016 Houston Geological Society Foundation Scholarship Recipient ($2,500)
**By nomination only; selected by JSG's Undergraduate Faculty Council as one of two top undergraduate students in the department*
2014 Smithsonian Institution Natural History Research Experience Finalist
**Selected from 500 applicants nationwide as one of 50 top candidates for a 10-week National Science Foundation research internship at the National Museum of Natural History (Washington, D.C.)*

Institutional

University of Minnesota- Twin Cities
2022 Doctoral Dissertation Fellowship Department Nominee
**one of two late-career PhD students nominated by ESCI department to advance to university-wide fellowship competition*
2017 College of Science and Engineering Graduate Fellowship (College-wide, 3-year full tuition + stipend)

The University of Texas at Austin (†university-wide, all else department-level)
2016 2nd Place, Best Undergraduate Poster, 2nd Annual Jackson School Symposium
2015 Geoscience Leadership Organization for Women (GLOW) Award (inaugural award year)
2012 †Information Literacy Award Nominee, University of Texas Libraries
*One of 24 faculty-nominated, first-year research papers recognized for 'excellence in library research' and 'effective application of information literacy and fluency principles'
2012 Jackson School of Geosciences Undergraduate Recruitment Scholarship ($10,000)

RESEARCH GRANTS *(career total since 2015: $8,870)*

2019 Geological Society of America Graduate Student Research Grant ($2,500)
2018 Geological Society of America Graduate Student Research Grant ($1,870)
2016 Jackson Scholars Grant, Jackson School of Geosciences, UT-Austin ($500)
2015 Undergraduate Research Fellowship, UT-Austin ($1,000 + $1,000 match from JSG)
2015 Plan II Thesis Grant, College of Liberal Arts, UT-Austin ($2,000)

PEER REVIEWED PUBLICATIONS (ORCID: orcid.org/0000-0003-4939-3282)
[ ] = number of citations

Refereed Journal Articles

4. **Raia, N.H.**, Whitney, D.L., Teyssier, C., Lesimple, S. (2022). Serpentinites of different tectonic origin in an exhumed subduction complex (New Caledonia, SW Pacific). Geochemistry, Geophysics, and Geosystems. https://doi.org/10.1029/2022GC010395 **[3]**
Role: *Primary and corresponding author; conceived project, processed samples and/or collected data, interpreted the results, wrote manuscript, produced figures, tables, and supplements*

3. Jin, X., Zhang, Y., Whitney, D.L., Zhang, K.-J., **Raia, N.H.**, Hamelin, C., Hu, J., Lu, L.,Zhou, X., Khalid, S. (2020). Crustal material recycling induced by subduction erosion and

subduction-channel exhumation: A case study of central Tibet (western China) based on P–T–t paths of the eclogite-bearing Baqing metamorphic complex. Geological Society of America Bulletin, 113(7-8), 1575-1599. https://doi.org/10.1130/B35638.1 **[8]**
Role: *Provided extensive comments on figures and minor comments on drafts of paper; some discussions of data during first-author's year at UMN*

2. Whitney, D.L., Hamelin, C., Teyssier, C., **Raia, N.H.**, Korchinski, M., Seaton, N., Bagley, B., von der Handt, A., Roger, F., Rey, P. (2020). Deep crustal source of gneiss dome revealed by eclogite in migmatite (Montagne Noire, French Massif Central). (2020). Journal of Metamorphic Geology, *38*(3), 297-327. https://doi.org/10.1111/jmg.12523 **[16]**
Role: *Acquired SHRIMP data presented in paper, reviewed drafts of paper and made minor edits/comments*

1. Cooperdock, E.H.G., **Raia, N.H.**, Barnes, J.D., Stockli, D.F., Schwarzenbach, E. (2018). Tectonic origin of serpentinites on Syros, Greece: Geochemical signatures of abyssal origin preserved in a HP/LT subduction complex. Lithos, 296, 352-364. https://doi.org/10.1016/j.lithos.2017.10.020 **[27]** *(Undergraduate honors thesis research)*
Role: *Conducted fieldwork for collection of a subset of samples, collected stable isotope data, contributed to writing and production of figures*

Non-Traditional Refereed Journal Articles

1. Newville, C., Whitney, D.L., Kang, P., **Raia, N.H.**, Fornash, K.F. (2021). How the Earth recycles. Frontiers for Young Minds. https://doi.org/10.3389/frym.2021.599596
Role: *Contributed to writing, edits, and feedback on figures and reviews*
**This journal is reviewed by middle school students assisted by a PhD scientist mentor, and publication requires typical refereed journal submission and review processes*

PRESENTATIONS AND POSTERS

Conference Presentations

First-authored abstracts

Raia, N.H., Ramos Arias, M., Whitney, D.L., Teyssier, C. (2022). Untangling the New Caledonia "mélange": refining lithostratigraphy with petrology and geochemistry. AGU Annual Meeting (Chicago, IL).

Raia, N.H., Whitney, D.L., Teyssier C. (2020). Serpentinites of different tectonic origin captured in an HP/LT terrane: the case for New Caledonia (SW Pacific). AGU Annual Meeting (virtual).

Raia, N.H., Whitney, D.L., Teyssier C. (2020). Subduction zone redox: extracting fO_2 from the rock record. GSA North-Central Section 54th Annual Meeting (moved to virtual from Duluth, MN).

Raia, N.H., Whitney, D.L., Teyssier, C., Lesimple, S. (2018). Insights into the tectonic affinities and fluid histories of ultramafic rocks from the Massif du Sud, Central Chain, and HP/LT terranes, New Caledonia. AGU Annual Meeting (Washington, D.C.).

Raia, N.H., Whitney, D.L., Teyssier, C. (2018). Assessing the oxidation state of exhumed subducted terranes: a case study from the HP/LT New Caledonia belt. Goldschmidt Geochemical Annual Conference (Boston, MA).

Collaborative abstracts

Ramos Arias, M., **Raia, N.H.,** Teyssier, C., Whitney, D.L. (2022). Untangling the New Caledonia "mélange": multi-scale structural and field observations. AGU Annual Meeting (Chicago, IL). **utilizes dissertation samples*

Wada, I., Zhou, X., Penniston-Dorland, S.C., Harvey, K.M., Steele, A., Bullock, E., **Raia, N.H.**, Dragovic, B., van Keken, P.E. (submitted). Collaborative research: constraining the thermal

structure of fossil subduction plate interfaces through combining petrology and geodynamics. AGU Annual Meeting (Chicago, IL). **utilizes dissertation samples*

Penniston-Dorland, S.C., Harvey, K.M., Zhou, X., Wada, I., Steele, A., Bullock, E., **Raia, N.H.,** Dragovic, B. van Keken, P.E. (2022). Constraining the thermal structure of fossil subduction plate interfaces: Combining petrology and geodynamics. GSA Annual Meeting (Denver, CO). **utilizes dissertation samples*

Harmon, N., Cruz-Uribe, A.M., **Raia, N.H.**, Whitney, D.L. (2021). Distribution of first row transition elements across the blueschist to eclogite transition. AGU Annual Meeting (New Orleans, LA). **utilizes dissertation samples*

Jin, X., Zhang, Y., Whitney, D.L., **Raia, N.H.**, Hamelin, C., Hu, J.C., Shahbaz, K.B. (2019). Subduction erosion, basement destruction and crust growth: evidence from P-T-t evolution of the eclogite-bearing Jitang Metamorphic Complex (Central Tibet). AGU Annual Meeting (San Francisco, CA).

Whitney, D.L., Teyssier, C., Hamelin, C., **Raia, N.H.**, Korchinski, M., Roger, F., Rey, P. (2019). Eclogites in migmatites: evidence for exhumation of large volumes of deep crust. GSA Annual Meeting (Phoenix, AZ).

Cooperdock, E.H.G., Stockli, D.F., **Raia, N.H.**, Barnes, J. (2018). Multi-stage history of fluids and faults in serpentinites on Syros, Greece. AGU Annual Meeting (Washington, D.C.).

Teyssier, C., Whitney, D.L., Hamelin, C., **Raia, N.H.**, Roger, F., Rey, P. (2018). Zircon in eclogite tracks deep crust exhumation in a migmatite dome. GSA Annual Meeting (Indianapolis, IN).

Hamelin, C., Whitney, D.L., **Raia, N.**, Teyssier, C. (2018) Timing of eclogite metamorphism and relationships to dome evolution and dynamics in the Montagne Noire, France: insights from in-situ U/Pb zircon and rutile petrochronology. Petrochro2018 Summer School (Sete, France).

Raia, N., Cooperdock, E.H.G., Barnes, J.D., Stockli, D.F. (2016). Tectonic origin of serpentinites on Syros, Greece: geochemical signatures of seafloor serpentinization preserved in a HP/LT subduction complex. AGU Annual Meeting (San Francisco, CA).

Cisneros, M., **Raia, N.**, Barnes, J.D. (2014) Tracing retrograde fluid sources in serpentinite and greenschist facies rocks from Syros, Greece. AGU Annual Meeting (San Francisco, CA).

Hughes, K., Amaral, T., **Raia, N.** Tamre, E., Smith, M. (2014). Isotopic signatures of rain and snow in the Juneau Icefield snowpack. GSA Annual Meeting (Vancouver, B.C.).

Presentations (oral unless otherwise noted)

External/Public Presentations

2019 Dept of Mineral Sciences, Natl. Museum of Natural History, Smithsonian Institution
2016 INVITED: Austin Geological Society Annual Poster Session (poster)
2016 INVITED: 120th Geology Foundation Advisory Council Poster Session (poster)
2015 Geoscience Australia, Canberra, AUS (poster)

Institutional

2021 Dept of Earth & Environmental Sciences, Hard Rock Lunch Lightning Talk (x2)
2020 Dept of Earth & Environmental Sciences, Hard Rock Lunch Seminar (x2)
2018 Fourth Annual Earth Sciences Student Research Symposium
2018 Department of Earth Sciences, Hard Rock Lunch Seminar
2016 UT-Austin, Dept of Geological Sciences, Undergraduate Honors Program
2016 Jackson School Research Symposium, The University of Texas at Austin (poster)

Other Presentations and Articles

2016 INVITED: Jackson School of Geosciences Annual Scholarship Luncheon, Undergraduate Address to the JSG Community

2016 INVITED: 120th Geology Foundation Advisory Council Meeting, An Update on the Undergraduate Honors Research Program at the Jackson School of Geosciences
2014 Undergraduate Geological Society Meeting: Research on the Remote Juneau Icefield
2014 INVITED: Plan II web feature, Greece to Glaciers: A Summer of Educational Extremes

TEACHING

Teaching Assistant, ESCI 1005: Geology and Cinema (introductory course for non-majors); Spring 2021 (fully virtual), Spring 2022 (in person); 1-4 two-hour lab sessions per week

SERVICE

Professional Service

2023 – Data as a World Heritage Position Statement Committee
American Geophysical Union (AGU)

Member of eight-person committee of subject experts tasked at reviewing and updating the AGU's position statement. Revised statement undergoes an open comment period for the AGU's membership to provide input, and after final revision, is adopted, to be used by the AGU as it advocates for funding and resources for earth and space science research

2023 – Voices for Science Advocate, Policy Track
American Geophysical Union (AGU)

One of 20 scientists across North America selected to work in the policy track; advocates receive training to communicate the value and impact of Earth and space sciences to decision makers, journalists, and public audiences; my work is focused on collaborating with AGU's Data Leadership team to review existing AGU resources for conducting open science, providing feedback and collaborating on strategies for improved dissemination of materials and guidance

Departmental Service (University of Minnesota)

2022 – Confronting Colonization Working Group

Member of a ten-person committee tasked with developing a multi-year strategic plan the Department is implementing to address our existence and operation within a land-grant university, our complex beginnings as a department, and the ways in which we interact with Indigenous people and land in carrying out our mission of teaching and research; commitments are far-reaching, including assessment and possible repatriation of items in department collections collected illegally on Indigenous lands, developing best practices and connections for engaging with tribal communities in co-produced collaborative research (including adopting CARE principles), and adapting undergraduate curricula to reflect hidden histories

2022 Department Head Search Committee, Graduate Student Representative
**faculty-appointed*

2020 Unlearning Racism in Geoscience (URGE)

Participant in NSF-funded program to "deepen the community's knowledge of the effects of racism on the participation and retention of Black, Brown, and Indigenous people in Geoscience"; we discussed personal experiences, compiled internal data, and developed recommendations for anti-racist policies and strategies to implement in the future within the department

2018-2020 Student Research Symposium Committee

Principal visionary and lead for five-person student and staff team

My leadership over two years directly resulted in:

-growing cross-disciplinary, inter-college connections through successful initiation of the inclusion of the Department of Soil, Water, and Climate

-re-vamping event communication and advertisements

-increasing ESCI-specific day-of attendance by 32%

-increasing undergraduate & graduate student presentations by 112% (from 24 to 51)

-securing $2900 in new funding for the event from the Graduate School

-successfully lobbying for venue-changes to increase the event's public exposure

-working closely with university graphic design department to develop and deliver new signage to bring greater visibility and professional appearance to the event

2018-2019 Departmental Rock Processing Facility Renovation

Researched, planned, and co-executed (in tandem with another PhD student and support from department faculty and staff) the purchasing and installation of $30,000 in capital upgrades to the Department of Earth & Environmental Sciences multi-user rock processing and thin section making facilities (Tate S50); re-design improved safety and involved development of new standard operating and training procedures

2018 Graduate Student Faculty Liaison

2018, 2021 Annual Advisory Board Meeting, Graduate Student Representative

PROFESSIONAL AFFILIATIONS

2020 – Society for the Preservation of Natural History Collections

2016 – Mineralogical Society of America

2015 – American Geophysical Union

2013 – Geological Society of America