

NICHOLAS D. BARBER

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Department of Earth Sciences ◊ University of Cambridge

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EDUCATION

Department of Earth Sciences September 2018 - Present
University of Cambridge, Cambridge UK
PhD in Earth Sciences - *Planned Completion: July 2022*

Biodiversity, Earth and Environmental Science Department September 2013 - June 2018
Drexel University, Philadelphia PA
Bachelor of Science (B.S.) in Geoscience - Minor in Chemistry

AWARDS & HONORS

2022: **Outstanding Student Presentation Award** from American Geophysical Union (AGU). Value: \$100
2019: **Pressland Bursary** for **Intensive Foreign Language Fieldwork - Indonesian**. Value: £1,000
2019: Geological Society of London **Daniel Pidgeon Fieldwork Scholarship**. Value: £1,000
2019: **Shell-Churchill Research Prize** for **Best Postgraduate Student Research Proposal**. Value: £3,000
2018: **Gates-Cambridge Scholarship**. Value: £70,000
2018: **Fulbright Study/Research Grant for Indonesia** (Declined)
2018: National Science Foundation **Graduate Research Fellowship** - Honourable Mention
2016: NOAA **Ernest F. Hollings Scholarship**. Value: \$10,000
2016: **Goldwater Scholarship**. Value: \$10,000

PUBLICATIONS

Published/Accepted

Barber, N.D., Edmonds, M., Jenner, F., Audétat, A., Williams, H., 2021. *Amphibole control on copper systematics in arcs: Insights from the analysis of global datasets*. *Geochimica et Cosmochimica Acta* 307, 192–211. <https://doi.org/10.1016/j.gca.2021.05.034>. Preprint posted on [EarthArXiv](https://arxiv.org/abs/2110.2010) 21/10/20.

Virtanen, V.J., Heinonen, J.S., **Barber, N.D.**, Molnár, F. *Complex Effects of Assimilation to Sulfide Saturation Revealed by Modeling with the 1 Magma Chamber Simulator: a Case Study on the Duluth Complex, Minnesota, USA*. Accepted for publication in [Economic Geology](https://www.sciencedirect.com/journal/economic-geology) on Nov 12, 2021.

Manuscripts Submitted/In Review

Handini E., Hasenaka T., Shibata T., **Barber N.D.**, Mori Y., Harijoko A. *Lateral variation of slab-derived fluid in a cold subduction zone*. Submitted to *Progress in Earth and Planetary Sciences*.

Handini, E., Warmada, I.W., Hasenaka, T., **Barber, N.D.**, Shibata, T. *Geochemistry of Arc Alkaline magmatism on Java Island, Sunda Arc: A Statistical Review*. Submitted to IOP Conference Proceedings on December 19th, 2021.

Manuscripts in Preparation

Barber, N.D., Edmonds, M., Jenner, F., Williams, H. *Global Slab Dehydration Recorded in Arc Magmas*.

Barber, N.D., Baldwin, S.B., Edmonds, M., Harijoko, A., Wibowo, H.E. *Monogenetic Volcanoes as Windows Into Transcrustal Mush: A Case Study at Slamet Volcano, Indonesia*.

Barber, N.D., Jay, A., Vanderkluyzen, L., and Carey, E. *How Big is a Flood Basalt? Applying Geographic Information Systems to Estimate Modern and Original Deccan Lava*.

CONFERENCE ACTIVITY

Conference Talks

2021: **Barber, N.D.**, Edmonds, M., Jenner, F., and Williams, H. *Global Slab Dehydration Recorded in Arc Magmas*. AGU Fall Meeting

2021: **Barber, N.D.**, Baldwin, S.B., Edmonds, M., Harijoko, A., Wibowo, H.E. *Monogenetic Scoria Cones as Windows into Transrustal Mush*. Goldschmidt Conference

2020: **Barber, N.D.**, Edmonds, M., Jenner, F., Williams, H., and Audetat, A. *A Big Data Perspective on the Behaviour of Copper in Arc Magmas*. Goldschmidt Conference

2020: **Barber, N.D.**, Edmonds, M., and Jenner, F. (2020). *Systematics of Chalcophile Metals in Volcanic Arcs : A Global Perspective*. Volcano-Magmatic Studies Group Meeting (VMSG) Meeting

2019: Vanderkluyzen, L., Carey, E., **Barber, N.D.**, Jay, A., Self, S., Mittal, T., and Renne, P.R. *Validity of the Deccan Chemostratigraphy and Extent of Deccan Formations Beyond the Western Ghats (India)*. AGU Fall Meeting

2019: **Barber, N.D.**, Jay, A., Vanderkluyzen, L., and Carey, E. *Large Igneous Provinces and Environmental Change: Applying GIS to Estimate Total Deccan Lava Volumes*. Janet Watson Deep Carbon Meeting.

2018: Vanderkluyzen, L., **Barber, N.D.**, Jay, A., and Carey, E. *Pre- & Post-Erosional Estimates of Deccan Lava Volumes*. AGU Fall Meeting

2017: Vanderkluyzen, L., **Barber, N.D.**, Wolosyznek, S. O'Connor, M., Mittal, T., Sealing, C.R., Sprain, C.J., and P.R. Renne. *Statistical Analysis of Deccan Basalt Geochemistry: An Updated Look at Deccan Chemostratigraphy*. AGU

Seminars

2020: **Barber, N.D.**, Edmonds, M.E., Jenner, F., Williams, H.W., and Audetat, A. *Global Systematics of Copper in Arc Magmas*. EGU Geochemistry, Mineralogy, Petrology, & Volcanology (GMPV) ECR Seminar

2020: **Barber, N.D.**, Edmonds, M.E., Harijoko, A., Wibowo, H.E., Williams, H.W., Marliyani, G., Jenner, F., and Handini, E. *Volcanoes: Earth's Copper Factories*. Churchill College Postgraduate Seminar.

Conference Posters

2021: **Barber, N.D.**, Edmonds, M., Handini, E., Jenner, F., Harijoko, A., Wibowo, H.E. *Intraplate vs. Subduction Signals in the Sunda Back-Arc: Petrology and Geochemistry of Pulau Bawean, Java, Indonesia*. VMSG Meeting.

2020: **Barber, N.D.**, Edmonds, M., Jenner, F., Audétat, A., Williams, H. *Global Systematics of Copper in Arc Magmas Using a Big Data Approach*. AGU Fall Meeting

2020: Handini, E., Hasenaka, T., Sano, T., Shibata, T., **Barber, N.D.**, Setiawan, N.I. *Heterogeneity of subducting Indian ocean plate and its implication to Sundar-arc magmas geochemical systematics*. AGU Fall Meeting

2020: Baldwin, S.L., **Barber, N.D.**, Edmonds, M., Harijoko, A., and Wibowo, H.E. *Magma Mixing and Monogenetic Volcanism at Slamet Volcano and Mount Loyang, Indonesia*. VMSG Meeting

2019: **Barber, N.D.**, Jay, A., Vanderkluyzen, L., and Carey, E. *Applying Geographic Information Systems to Estimate Pre- and Post-Erosional Deccan Lava Volumes*. VMSG Meeting

2017: **Barber, N.D.**, Jay, A., and Vanderkluyzen, L. *Using Geographic Information Systems to Refine Estimates of Deccan Lava Flow Volumes (India)*. IAVCEI International Meeting.

TEACHING EXPERIENCE

2020 to Present: **Invited Lecturer**. [GIS for Geoscientists Virtual Workshop](#). McGill, UCL, [VMSG](#)

2020 to Present: **Lecturer** GIS for 3rd Year Earth Science undergrad Practical Skills Course

2019 to 2021: **Jesus College Supervisor**. Led weekly small-group [supervisions](#) for 1st year students

2019 to 2020: **Masters Thesis Supervisor**. S.L. Baldwin: *Magma Mixing at Mt. Slamet & Loyang Volcanoes*.

2019 to Present: **Teaching Lab Demonstrator** for 2nd year Earth Science - Mineralogy & Petrology

2019 to 2021: **Field Demonstrator** on 1st Year trip to [Arran](#). Focus on Physical Geology and Tectonics

2018 to Present: **Teaching Lab Demonstrator** for 1st year Earth Science: Paleobiology, Solid Earth, Climate

Total Teaching Time During PhD: > **400 Hours**

RESEARCH EXPERIENCE

Microanalysis: Raman Spectroscopy (Cambridge), Electron Microprobe Analysis (Cambridge), Scanning Electron Microscopy (Cambridge), and Secondary Ion Mass Spectrometry (Edinburgh). Focused on melt inclusions

Sample Preparation: Co-managed a hard-rock sample preparation facility at Cambridge, specializing in melt inclusions, grain mounts, thin sections. Experience with rock saws and Saphir polishing rigs. Trained 10+ students on use of Zeiss microscopes and Saphir polishing equipment

International Collaboration: Negotiated a five-year Memorandum of Understanding between Cambridge and Universitas Gadjah Mada (Indonesia) to facilitate a 6-week sampling campaign of volcanoes in Java.

PROFESSIONAL SERVICE

2021 to Present: Peer Reviewer — **Earth and Planetary Science Letters** and **G-Cubed**
2021 to Present: Organizing Committee — **Volcanology Reading Rendezvous Journal Club** - Discussion Group
2021 to Present: Acting Chair — **Equality, Diversity, and Inclusivity (EDI) Working Group**, CamEarthSci
2020 to 2021: Co-Chair — **Cambridge Volcanology Seminars**.
2020 to Present: Organizing Committee — **Geoscience in Context** Seminar Series
2020 to Present: Grad Student Rep — **EDI Committee**. Department of Earth Science, Cambridge
2019 to Present: Student Manager — **Sample Prep. Lab** Department of Earth Sciences, Cambridge
2019 to Present: Grad Student Rep. — **Postgrad. Affairs Committee**, Department of Earth Sciences, Cambridge.
2019 to 2021: Treasurer — **Postgrad. Student Association (MCR)**, Churchill College, Cambridge

OUTREACH

2019 to Present: **Student Ambassador** — Earth Science on **Cambridge Open Days**
Mar. 2019: **Science Ambassador** (Volcanology) — Cambridge Super Science Saturday
2018 to 2020: **Pen Pal** — **Letters to a Pre-Scientist** Program.

MEDIA

2021: **Department blog post** — **Arran 2021: reporting on the successes of running a field trip in Covid-times**
2020: **Department blog post** — **Research in Lockdown: Fieldwork Disrupted**
2018: **Podcast appearance** — **Pop! The Question** - Season 1 Episode 6 "This Thing is Gonna Blow"

PROFESSIONAL CERTIFICATIONS

2021: **Advanced QGIS & Google Earth Engine** Certifications; **Spatial Thoughts**
2021: **Associate Fellow** of the **UK Higher Education Academy**.
2019: **Bahasa Indonesian** — CEFR Level B2, or ACTFL Level Intermediate. INCULS, Universitas Gadjah Mada

COURSES PREPARED TO TEACH

Physical Geology — Mineralogy — Igneous & Metamorphic Petrology — GIS (Any Level)
Global Tectonics — Scientific Computing — Natural Hazards — Economic Geology — Volcanology

KEY TECHNICAL SKILLS

Languages: English (Native), Bahasa Indonesia (Intermediate)
Analytical: Raman Spectroscopy, Electron Microprobe (EPMA), Scanning Electron Microscopy (SEM), Secondary Ion Mass Spectrometry (SIMS), Optical Microscopy, Melt Inclusion Prep.
Programming: Python, R, MATLAB, MySQL, LaTeX, Git, Jupyter Suite
Software & Tools: **Geospatial:** QGIS 3.14, ArcMap 10.5, ArcScene, Google Earth Engine
Other: MELTS, Office 365 Suite, Inkscape, Moodle (equivalent of BBLearn)

PROFESSIONAL SOCIETIES

2020 to Present: **Student Member** — American Geophysical Union
2019 to Present: **Fellow** — Geological Society of London
2018 to Present: **Student Member** — Mineralogical Society of America
2018 to Present: **Student Member** — Mineralogical Society of Great Britain and Ireland
2018 to Present: **Student Member** — Cambridge Philosophical Society