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# CV: EMILY C. BAMBER

## Professional Experience

Assegno di Ricerca

### 2024-Present: CNR-ISSMC, Italy

ERC project NANOVOLC - Nanoscale dynamics of volcanic processes: Experimental insights and numerical simulations of explosive eruptions

### 2022-2024: University of Turin, Italy

Definition of storage, ascent and eruption conditions of the basaltic and silicic magmas of the early-Cretaceous volcanic sequence of the Paraná-Etendeka Magmatic Province, Brazil

## SUMMARY

### Current position

Assegnista di Ricerca

CNR-ISSMC

### ORCID

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### Scopus ID

57211669358

### Researchgate

<https://www.researchgate.net/profile/Emily-Bamber>

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*My research focuses on subsurface conduit processes and controls on eruptive style at volcanic systems, using a multidisciplinary approach. I am interested in combining analytical methods, synchrotron-based imaging techniques and numerical modelling, to constrain pre and syn-eruptive conditions and simulate magma ascent processes. Understanding pre-eruptive conditions and the dynamics of magma ascent is important for investigating controls on explosivity at volcanic systems.*

## SKILLS

- **Analytical techniques:** EPMA (electron probe microanalysis), SEM (scanning electron microscopy), SIMS (secondary ion mass spectrometry), Raman spectroscopy, LA-ICP-MS (laser ablation inductively coupled plasma mass spectrometry), optical and reflected light microscopy.
- **Synchrotron facilities:** X-ray computed microtomography, X-ray ptychography.
- **Experimental facilities:** High temperature and atmospheric pressure experimental furnace. Knowledge of high temperature, high pressure piston cylinder apparatus, experimental design and data processing.
- **Modelling:** 1D numerical conduit model of volcanic processes (MAMMA), MATLAB, Linux terminal and MELTS.

## EDUCATION

**PhD:** Earth Science, The University of Manchester, UK

Thesis: Understanding Basaltic Plinian Eruptions

**MSc:** Geoscience, University College London, UK

**BSc:** Geology, The University of Manchester, UK

## PUBLICATIONS

**Bamber, E.C.**, Giordano, D., Masotta, M., Arzilli, F., Colle, F., González-García, D., de Assis Janasi, V., Ramos Dias de Andrade, F., Vlach, S.R.F., Carroll, M.R. and Dingwell, D.B. (2024). Experimental constraints on the pre-eruptive conditions of the Caxias do Sul dacite: Implications for high temperature silicic volcanism of the Paraná Magmatic Province, Brazil. *Chemical Geology*, 662, 122236. <https://doi.org/10.1016/j.chemgeo.2024.122236>

**Bamber, E.C.**, La Spina, G., Arzilli, F., Polacci, M., Mancini, L., de' Michieli Vitturi, M., Andronico, D., Corsaro, R.A. and Burton, M.R. (2024). Outgassing behaviour during highly explosive basaltic eruptions. *Communications Earth & Environment*, 5, 3. <https://doi.org/10.1038/s43247-023-01182-w>

Fabbrizio, A., **Bamber, E.C.**, Michailidou, E., Romero, J.E., Arzilli, F., Bonechi, B., Polacci, M. and Burton, M. (2023). Phase equilibrium experiments and thermodynamic simulations to constrain the pre-eruptive conditions of the 2021 Tajogaite eruption (Cumbre Vieja volcano, La Palma, Canary Islands). *Journal of Volcanology and Geothermal Research*, 442, 107901. <https://doi.org/10.1016/j.jvolgeores.2023.107901>

**Bamber, E.C.**, La Spina, G., Arzilli, F., de' Michieli Vitturi, M., Polacci, M., Hartley, M.E., Petrelli, M., Fellowes, J. and Burton, M. (2022). Basaltic Plinian eruptions at Las Sierras-Masaya volcano driven by cool storage of crystal-rich magmas. *Communications Earth & Environment*, 3, 253. <https://doi.org/10.1038/s43247-022-00585-5>

Di Genova, D., Brooker, R.A., Mader, H.M., Drewitt, J.W.E., Longo, A., Deubener, J., Neuville, D.R., Fanara, S., Shebanova, O., Anzellini, S., Arzilli, F., **Bamber, E.C.**, Hennem, L., La Spina, G. and Miyajima, N. (2020). In situ observation of nanolite growth in volcanic melt: A driving force for explosive eruptions. *Science Advances*, 6, eabb0413. <https://doi.org/10.1126/sciadv.abb0413>

**Bamber, E.C.**, Arzilli, F., Polacci, M., Hartley, M.E., Fellowes, J., Di Genova, D., Chavarría, D., Saballos, J.A. and Burton, M.R. (2020). Pre- and syn-eruptive conditions of a basaltic Plinian eruption at Masaya Volcano, Nicaragua: The Masaya Triple Layer (2.1 ka). *Journal of Volcanology and Geothermal Research*, 392, 106761. <https://doi.org/10.1016/j.jvolgeores.2019.106761>

Arzilli, F., La Spina, G., Burton, M.R., Polacci, M., Le Gall, N., Hartley, M.E., Di Genova, D., Cai, B., Vo, N.T., **Bamber, E.C.**, Nonni, S., Atwood, R., Llewellyn, E.W., Brooker, R.A., Mader, H.M. and Lee, P.D. (2019). Magma fragmentation in highly explosive basaltic eruptions induced by rapid crystallization. *Nature Geoscience*, 12, 1023-1028. <https://doi.org/10.1038/s41561-019-0468-6>