

MARC-ANTOINE LONGPRÉ

SCHOOL OF EARTH & ENVIRONMENTAL SCIENCES, QUEENS COLLEGE, 65-30 KISSENA BLVD, FLUSHING, NY 11367, USA
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CANADIAN NATIONALITY; FRENCH, ENGLISH AND SPANISH LANGUAGE PROFICIENCY

Education

2004-2009: PhD, University of Dublin, Trinity College (TCD), Ireland

Thesis: “Consequences of giant landslides on ocean island magmatism: volcanic and geochemical evolution of the Teno massif, Tenerife, and El Hierro Island (Canary Archipelago)” (Supervisor: V. R. Troll).

2000-2003: BSc (Hons) in Earth Sciences, McGill University, Canada

Thesis: “The November 2002 eruption at Piton de la Fournaise volcano, La Réunion Island: ground deformation, seismicity and pit crater collapse” (Supervisor: J. Stix).

Academic Positions

2013-present: Assistant Professor, Queens College, City University of New York, USA.

2011-2013: Postdoctoral Fellow, McGill University, Canada – Natural Sciences and Engineering Research Council of Canada (NSERC).

Projects: “Eruptive history at Nicaraguan volcanoes” and “Petrogenesis and degassing of basanite magma erupted at El Hierro, Canaries, in 2011-2012” (Advisor: J. Stix).

2009-2011: Postdoctoral Fellow at McGill University – R. H. Tomlinson and Fonds de recherche du Québec – Nature et technologies (FQRNT).

Project: “Petrogenesis of andesite and dacite magmas at Nicaraguan volcanoes” (Advisor: J. Stix).

Teaching and Mentoring

2013-2015: Courses taught at Queens College: Earth Materials I & II (GEOL 201, 202), Physical Geology (GEOL 101), Volcanoes and Climate (GEOL 383/799.3), Igneous Petrology (GEOL 383/799.3)

2011: Course taught at McGill University: Spectroscopy of Minerals (EPSC 212).

01-04/2010: Attendee, course “College and University Teaching Strategies” at Université du Québec à Montréal.

2004-2010: Teaching Assistant at TCD and McGill University.

Student Supervision

PhD:

2015-present: John Zayac, “Trigger mechanisms of chemically zoned explosive eruptions”.

Masters:

2014-present: James Muller, “Tephrostratigraphy of the 1730-6 Lanzarote eruptive deposits, Canary Islands”.

2014-present: Patrick Beaudry, “Source of volatiles in Canary Island magmas: Insights from sulfur isotopes”.

Undergraduate:

- 2015:** Sara Kosari, “Origin of bubbles in dacitic melt inclusions from Concepción volcano, Nicaragua”.
- 2015:** Anju Mahadeo, “Zoning in olivine crystals from the 1730-6 Lanzarote eruption, Canary Islands”.
- 2014:** Mickla Adams, “H₂O concentrations in dacite magma from Concepción volcano, Nicaragua”.
- 2013:** Philip Lypaczewski, “Thermobarometry of Cerro Negro tephtras, Nicaragua”.
- 2009-2010:** Erika Anderson, “Composition of volcanic glasses from Cosigüina volcano, Nicaragua”.
- 2006:** Karina Fernandez, “Petrology of lavas from El Hierro, Canary Islands”.
- 2006:** Orla McKenna, “Textural study of lavas from El Hierro, Canary Islands”.
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Fieldwork

- 01/2015:** Lanzarote, Canary Islands, stratigraphy and sampling.
- 06-07/2014:** Lanzarote, Tenerife and La Palma, Canary Islands, stratigraphy and sampling.
- 01/2012:** Cerro Negro volcano, Nicaragua, gas sampling and tephrostratigraphy.
- 08/2009, 09/2010 & 01/2012:** Cosigüina and Concepción volcanoes, Nicaragua, tephrostratigraphy.
- 10/2011:** El Hierro, Canary Islands, thermal monitoring and stratigraphy.
- 04/2005 & 06/2006:** Gran Canaria, Tenerife and El Hierro, Canary Islands, stratigraphy and mapping.
- 06-09/2004:** Abitibi and Ontario Greenstone belts, mapping, Murgor Resources Inc.
- 05-09/2002 & 2003:** Lake City caldera and Ossipee ring dyke, USA, mapping.
- 09-12/2002:** Piton de la Fournaise volcano, La Réunion, France, GPS monitoring.
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Analytical Instrumentation

- 11/2014:** Ion microprobe, University of California, Los Angeles.
- 11/2005, 07/2006 & 2009-2013:** Electron microprobe, GEOMAR, Germany, and McGill University.
- 04/2009, 03/2012:** Ion microprobe, Woods Hole Oceanographic Institution.
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Other Relevant Experience and Activities

- 2015:** Session convener, “Sulfur: Trace but mighty in redox, degassing, magmatic processes, and mineralization”, Goldschmidt 2015.
- 2014:** Session convener, “New advances in subduction zone magma genesis”, Goldschmidt 2014.
- 2013:** Member of the organising committee and lecturer at the Pan-American Advanced Studies Institute workshop, “Magma-Tectonic Interactions in the Americas”, Léon, Nicaragua.
- 2012:** Session convener, “Crystals and glasses as archives of volcanic processes”, Goldschmidt 2012.
- 2011-2012:** Member of the Student Committee for Goldschmidt 2012, organisation of a short course, field excursion and competition for best student presentations.
- 2007-2014:** Reviewer for *NSF (1)*, *NSERC (1)*, *Lithos (1)*, *Geophysical Research Letters (1)*, *Encyclopedia of Volcanoes (1)*, *Nature Communications (1)*, *Geology (1)*, *Bulletin of Volcanology (4)*, *Contribution to Mineralogy and Petrology (1)* and *Central European Journal of Geosciences (1)*.
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Funding and Awards

- 2014:** PSC-CUNY Award.
- 09/2012-2013:** Multidisciplinary Applied Geochemistry Network (MAGNET) Trainee.
- 06/2011-2013:** NSERC Postdoctoral Fellowship.
- 06/2009-2011:** FQRNT Postdoctoral Fellowship.
- 06/2009-2011:** Richard H. Tomlinson Postdoctoral Fellowship from McGill University.
- 03/2007-2009:** NSERC Postgraduate Scholarship for PhD at TCD.
- 10/2004-2007:** Trinity Postgraduate Studentship.
- 09/2006:** Geological Society of London Poster Prize for best student presentation, Fermor 2006.
- 10/2004-2006:** NSERC Postgraduate Scholarship for MSc-PhD at TCD.

2004: Léopold Gélinas Medal for best BSc thesis in volcanology, awarded by the Igneous Petrology and Volcanology Division of the Geological Association of Canada.

2003: First Class Honours in Earth Sciences, McGill University.

04/2002-08/2003: NSERC Undergraduate Research Scholarships.

Scientific Contributions

Published Peer-Reviewed Articles (~350 citations, h-index = 10)

1. Klügel, A., **M.-A. Longpré**, L. García-Cañada, and J. Stix (2015), Deep intrusions, lateral magma transport and related uplift at ocean island volcanoes, *Earth and Planetary Science Letters*, 431, 140-149, doi: 10.1016/j.epsl.2015.09.031.
2. **Longpré, M.-A.**, J. Stix, C. Burkert, T. H. Hansteen, and S. Kutterolf (2014), Sulfur budget and global climate impact of the AD 1835 eruption of Cosigüina volcano, Nicaragua, *Geophysical Research Letters*, 41, 6667-6675, doi:10.1002/2014GL061205.
3. **Longpré, M.-A.**, J. Stix, F. Costa, E. Espinoza and A. Muñoz (2014), Magmatic processes and associated timescales leading to the January 1835 eruption of Cosigüina volcano, Nicaragua, *Journal of Petrology*, 55, 1171-1201, doi: 10.1093/petrology/egu022.
4. **Longpré, M.-A.**, A. Klügel, A. Diehl, and J. Stix (2014), Mixing in mantle magma reservoirs prior to and during the 2011-2012 eruption at El Hierro, Canary Islands, *Geology*, 42, 315-318, doi: 10.1130/g35165.1.
5. Troll, V.R., A. Klügel, **M.-A. Longpré**, S. Burchardt, F.M. Deegan, J.C. Carracedo, S. Wiesmaier, U. Kueppers, B. Dahren, L.S. Blythe, T.H. Hansteen, C. Freda, D.A. Budd, E.M. Jolis, E. Jonsson, F. Meade, C. Harris, S. Berg, L. Mancini, M. Polacci, and K. Pedroza (2012), Floating stones off El Hierro, Canary Islands: xenoliths of pre-island sedimentary origin in the early products of the October 2011 eruption, *Solid Earth*, 3, 97-110, doi: 10.5194/se-3-97-2012.
6. **Longpré, M.-A.**, J. P. Chadwick, J. Wijbrans, and R. Iping (2011), The age of the El Golfo debris avalanche, El Hierro (Canary Islands): New constraints from laser and furnace ⁴⁰Ar-³⁹Ar dating, *Journal of Volcanology and Geothermal Research*, 203, 76-80, doi: 10.1016/j.jvolgeores.2011.04.002.
7. Helo, C., **M.-A. Longpré**, N. Shimizu, D. Clague, and J. Stix (2011), Explosive eruptions on mid-ocean ridges driven by CO₂-rich magmas, *Nature Geoscience*, 4, 260-263, doi:10.1038/ngeo1104.
8. Wilcock, J., **M.-A. Longpré**, J. M. de Moor, J. Ross, and M. Zimmerer (2010), Calderas bottom-to-top: An online seminar and field trip, *Eos Trans. AGU*, 91, doi:10.1029/2010EO010002.
9. **Longpré, M.-A.**, V. R. Troll, T. R. Walter, and T. H. Hansteen (2009), Volcanic and geochemical evolution of the Teno massif, Tenerife (Canary Islands): some repercussions of giant landslides on ocean island magmatism, *Geochemistry Geophysics Geosystems*, 10, Q12017, doi:10.1029/2009GC002892.
10. Manconi, A., **M.-A. Longpré**, T. R. Walter, V. R. Troll, and T. H. Hansteen (2009), The effects of flank collapses on volcano plumbing systems, *Geology*, 37, 1099-1102, doi: 10.1130/G30104A.1.
11. **Longpré, M.-A.**, V. R. Troll, and T. H. Hansteen (2008), Upper mantle magma storage and transport under a Canarian shield-volcano, Teno, Tenerife (Spain), *Journal of Geophysical Research*, 113, B08203, doi:10.1029/2007JB005422.
12. **Longpré, M.-A.**, R. del Potro, V. R. Troll, and G. R. Nicoll (2008), Engineering geology and future stability of the El Risco landslide, NW-Gran Canaria, Spain, *Bulletin of Engineering Geology and the Environment*, 67, 165-172, doi: 10.1007/s10064-007-0119-9.
13. **Longpré, M.-A.**, T. Staudacher, and J. Stix (2007), The November 2002 eruption at Piton de la Fournaise volcano, La Réunion Island: ground deformation, seismicity, and pit crater collapse, *Bulletin of Volcanology*, 69, 511-525, doi: 10.1007/s00445-006-0087-0.
14. Kennedy, B., J. Stix, J. W. Vallance, Y. Lavallée, and **M.-A. Longpré** (2004), Controls on caldera structure: results from analogue sandbox modeling, *Geological Society of America Bulletin*, 116, 515-524, doi: 10.1130/B25228.1.
15. Lavallée, Y., B. Kennedy, J. Stix, M. Richer, and **M.-A. Longpré** (2004), Caldera subsidence in areas of variable topographic relief: results from analogue modeling, *Journal of Volcanology and Geothermal Research*, 129, 219-236, doi: 10.1016/S0377-0273(03)00241-5.

Selected Oral Presentations, Last 5 Years (*My Student, Invited Contribution)

16. Beaudry, P.*, **M.-A. Longpré**, R. Economos, B. Wing, T. H. Bui, and J. Stix (2015), Sulphur isotope systematics in volcanic sulphides and glasses from El Hierro, Canary Islands, *25th Goldschmidt Conference*, Prague, Czech Republic.
17. **Longpré, M.-A.**, J. Stix, A. Klügel, and N. Shimizu (2015), Carbon- and sulfur-rich oxidized magmas feed Canary Island volcanoes, *Deep Carbon Observatory Thematic Institute*, Berkeley, USA.
18. **Longpré, M.-A.**, J. Stix, and F. Costa (2014), Mafic recharge to a zoned magma reservoir centuries prior to the 1835 Cosigüina eruption, *American Geophysical Union Fall Meeting*, San Francisco, USA.
19. **Longpré, M.-A.**, A. Klügel, A. Diehl, and J. Stix (2014), Mixing in the deep: Magma plumbing in space and time at El Hierro, Canary Islands, *24th Goldschmidt Conference*, Sacramento, USA.
20. Klügel, A, **M.-A. Longpré**, and J. Stix (2013), Petrological constraints on magma plumbing dynamics of the 2011 El Hierro eruption (Canary Islands), *23rd Goldschmidt Conference*, Florence, Italy.
21. **Longpré, M.-A.**, J. Stix, N. Shimizu, and A. Klügel (2013), The 2011-2012 submarine eruption of volatile-rich magma at El Hierro, Canary Islands, *International Association of Volcanology and Chemistry of the Earth's Interior General Assembly*, Kagoshima, Japan.
22. **Longpré, M.-A.**, J. Stix, A. Muñoz, and E. Espinoza (2012), Magma chamber processes leading to the January 1835 eruption of Cosigüina volcano, Nicaragua, *22nd V.M. Goldschmidt Conference*, Montréal, Canada.
23. A. Klügel, T. H. Hansteen, and **M.-A. Longpré** (2012), The 2011 El Hierro eruption confirms petrological models of magma transport at ocean islands, *European Geosciences Union General Assembly*, Vienna, Austria.
24. **Longpré, M.-A.**, J. Stix, J. Álvarez, and M. Navarro (2011), Magma chamber conditions leading to the dacitic Tierra Blanca eruption at Concepción volcano, Nicaragua, *International Union of Geodesy and Geophysics General Assembly*, Melbourne, Australia.

Selected Poster Presentations, Last 5 Years

25. **Longpré, M.-A.**, P. Beaudry*, N. Shimizu, and J. Stix (2015), Degassing, redox and sulfide saturation of sulfur-rich basanite at El Hierro, Canary Islands, *25th Goldschmidt Conference*, Prague, Czech Republic.
26. Muller, J.*, and **M.-A. Longpré** (2015), Reconstructing the 1730–1736 Timanfaya eruption (Lanzarote, Canary Islands) using tephrostratigraphy, *International Union of Geodesy and Geophysics General Assembly*, Prague, Czech Republic.
27. **Longpré, M.-A.**, J. Stix, A. Klügel, and N. Shimizu (2015), Deep degassing of CO₂-rich basanite magma at El Hierro, Canary Islands: Insights from melt and fluid inclusions, *American Geophysical Union Joint Assembly*, Montréal, Canada.
28. Muller, J.*, P. Beaudry*, and **M.-A. Longpré**, (2015), Exploring the eruptive sequence and chemical evolution of the AD 1730-1736 Timanfaya eruption, Lanzarote, Canary Islands, *American Geophysical Union Joint Assembly*, Montréal, Canada.
29. P. Beaudry*, **M.-A. Longpré**, R. Economos, B. Wing, T. H. Bui, and J. Stix (2015), Sulphur isotope fractionation during degassing of Canary Island magmas, *American Geophysical Union Joint Assembly*, Montréal, Canada.
30. **Longpré, M.-A.**, and J. Stix (2013), Sulphur yield and climatic impact of the AD 1835 eruption of Cosigüina volcano, Nicaragua, *International Association of Volcanology and Chemistry of the Earth's Interior General Assembly*, Kagoshima, Japan.
31. **Longpré, M.-A.**, A. Klügel, J. Stix, T. H. Hansteen, and V. R. Troll (2012), A study of crystals and glasses from the 2011 submarine eruption at El Hierro, Canary Islands, *European Geosciences Union General Assembly*, Vienna, Austria.
32. **Longpré, M.-A.**, J. Stix, E. Espinoza, and A. Muñoz (2011), Recurrent, chemically zoned explosive eruptions at Cosigüina volcano, Nicaragua, *International Union of Geodesy and Geophysics General Assembly*, Melbourne, Australia.

Invited Seminars

“Mantle to surface ascent and degassing of CO₂- and S-rich magma at El Hierro, Canary Islands”
Carnegie Institution of Washington (06/2015)

“Volatile-rich magmas and explosive volcanic eruptions”
American Museum of Natural History (10/2014), Rutgers University (03/2014), Queens College, CUNY (03/2013 and 11/2013), Lamont-Doherty Earth Observatory (11/2013)

“Giant landslides in the Canary Islands: Stirring up the deep plumbing systems of ocean island volcanoes”
University of Ottawa (11/2010), Université du Québec à Chicoutimi (10/2010), Geological Survey of Canada (06/2009)