

# DOMINIQUE FOURNIER

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## 1 Current Occupations

**Scientific programmer:** Mira Geoscience Ltd. May 2012 - present (Part-time)  
Research and Development

**Contributor to open-source projects:**

- *SimPEG*: Forward and inversion code in Python ([simpeg.xyz](http://simpeg.xyz))
- *GIFtools*: Inversion tools for the support of UBC-GIF inversion codes ([gifttoolscookbook.readthedocs.io](http://gifttoolscookbook.readthedocs.io))
- *GeoSci* : Web-based educational material in geophysics ([geosci.xyz](http://geosci.xyz))
- *GeoToolkit*: Simple interpretation tools for potential fields. Collaboration between MDRU and GIF ([geotoolkit.readthedocs.io](http://geotoolkit.readthedocs.io))

## 2 Professional Experience

**Candente Copper Corp.**  
GIS Technician

Summer 2011

Mapping and modeling of drilling program  
Database management

**Environnement Illimité Inc.**  
Field Survey Technician

2005-2008

Hydrological surveys (Bathymetry, Doppler Profiler, Water/Soil Sampling)  
Land surveys (GPS, Total Stations)

## 3 Education

**University of British Columbia**, Vancouver  
Ph.D Geophysics, September 2019

M.Sc Geophysics, November 2015

B.Sc Honours Geophysics, May 2012

Honours Thesis: Solution to the muon tomography problem: Implementation of an hybrid objective function

**College Ahuntsic**, Montreal  
Civil Engineering Diploma, May 2005

## 4 Publications

### 4.1 Lead Author

- Fournier, D., & Oldenburg, D. (2019b). Sparse magnetic vector inversion in spherical coordinates: Application to the Kevitsa Ni-Cu-PGE magnetic anomaly, Finland. *Geophysics*. (In revision)

- Fournier, D., & Oldenburg, D. W. (2019a). Inversion using spatially variable mixed lp-norms. *Geophysical Journal International*, 218(1), 268-282.
- Fournier, D., Kang, S., McMillan, M. S., & Oldenburg, D. W. (2017). Inversion of airborne geophysics over the DO-27/DO-18 kimberlites Part 2: Electromagnetics. *Interpretation*, 5(3), T313-T325. Retrieved from <https://doi.org/10.1190/INT-2016-0140.1> doi: 10.1190/INT-2016-0140.1
- Fournier, D., Davis, K., & Oldenburg, D. W. (2016). Robust and flexible mixed-norm inversion. In *Seg technical program expanded abstracts* (p. 1542-1547).
- Fournier, D. (2015). *A cooperative magnetic inversion method with lp-norm regularization* (MSc. Thesis). The University of British Columbia.

## 4.2 Co-Author

- Miller, C., Kang, S., Fournier, D., & Hill, G. (2018). Distribution of and condensate in a hydrothermal system: Insights from selfpotential inversion at Mount Tongariro, New Zealand. *Geophysical Research Letters*, 45, 8190-8198.
- Abedi, M., Fournier, D., Devriese, S. G., & Oldenburg, D. W. (2018a). Integrated inversion of airborne geophysics over a structural geological unit: A case study for delineation of a porphyry copper zone in Iran. *Journal of Applied Geophysics*, 152, 188 - 202. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0926985117307474> doi: <https://doi.org/10.1016/j.jappgeo.2018.04.001>
- Abedi, M., Fournier, D., Devriese, S. G., & Oldenburg, D. W. (2018b). Potential field signatures along the Zagros collision zone in Iran. *Tectonophysics*, 722, 25 - 42. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0040195117304298> doi: <https://doi.org/10.1016/j.tecto.2017.10.012>
- Yang, D., Fournier, D., Kang, S., & Oldenburg, D. W. (2018). Deep mineral exploration using multi-scale electromagnetic geophysics: the Lalor massive sulphide deposit case study. *Canadian Journal of Earth Sciences*, 56(5), 544-555.
- Schermerhorn, W. D., Ritzinger, B., Anderson, M., Peacock, J., Witter, J., Glen, J., ... Fournier, D. (2017). Geophysical investigation of the Mount Baker geothermal play. In *Gsa annual meeting in seattle*.
- Miller, C. A., Williams-Jones, G., Fournier, D., & Witter, J. (2017). 3D gravity inversion and thermodynamic modelling reveal properties of shallow silicic magma reservoir beneath Laguna del Maule, Chile. *Earth and Planetary Science Letters*, 459, 14 - 27. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0012821X16306410> doi: <https://doi.org/10.1016/j.epsl.2016.11.007>
- Devriese, S. G. R., Davis, K., & Oldenburg, D. W. (2017). Inversion of airborne geophysics over the do-27/do-18 kimberlites part 1: Potential fields. *Interpretation*, 5(3), T299-T311. Retrieved from <https://doi.org/10.1190/INT-2016-0142.1> doi: 10.1190/INT-2016-0142.1
- Kang, S., Fournier, D., & Oldenburg, D. W. (2017). Inversion of airborne geophysics over the do-27/do-18 kimberlites part 3: Induced polarization. *Interpretation*, 5(3), T327-T340. Retrieved from <https://doi.org/10.1190/INT-2016-0141.1> doi: 10.1190/INT-2016-0141.1

## 5 Awards

Dean's List (x3 years)

Thomas and Maguerite MacKay scholarship (x3 years)

APEGBC Achievement Award in Geoscience, May 2012

DuMoulin Black Award in Geological Sciences, May 2011