

Curriculum Vitæ

Evelise Bourlon

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Objectives

I am willing to take up responsibilities that will enable me to use my abilities to the fullest and in this process learn additional skills while working with an optimistic group.

Playground

Numerical methods for solving problems in Earth Sciences, time-series and image analysis, paleoclimate and climate dynamics and GIS applications.

Employment

- Present position: Interim Graduate Program Coordinator at Saint Francis Xavier University (Antigonish, NS).
- 2009-2010: Environmental GIS specialist at SeisMap Consulting (Frankville, NS) and FluxLab (Antigonish, NS).
- 2004-2009: Assistant professor at Saint Francis Xavier University (Antigonish, NS).
- 2005-2009: Associate researcher at Environmental Sciences Research Centre (Antigonish, NS) and GEOTOP-UQAM-McGill (Montreal, QC).
- 2007-2009: GIS/Geophysics consultant for SeisMap Consulting.
- 2005-2008: Adjunct professor at Université du Québec à Montréal (QC).
- 2003: Lecturer at Saint Francis Xavier University (Antigonish, NS).
- 1998-2003: Teaching assistant at Université du Québec à Montréal (QC).

Education

- Post-doctoral researcher in paleoclimate studies at Saint Francis Xavier University, Department of Earth Sciences, 2004. (Director: Dr. Hugo Beltrami)
- Ph.D. in Geophysics, Département des Sciences de la Terre et de l'Atmosphère, Université du Québec à Montréal, Canada, 2004. Dissertation: Analysis of gravity and magnetic fields in the Canadian Shield using standard and wavelet-based methods. (Director: Dr. Jean-Claude Mareschal)

- D.E.A. in Marine Geosciences, IFREMER, Université de Bretagne Occidentale, Brest, France, 1996. Dissertation 1: Plates border in the area of Gorringe Bank, Iberian Atlantic Margin: Structural investigation of seismic data. Dissertation 2: Mathematica source code for focal seismic mechanisms studies. (Directors: Dr. Bernard Le Gall, Alain Piqué & Philippe Pézard)
- Licence and Maîtrise in Fundamental and Applied Geophysics and Geochemistry, Institut de Physique du Globe de Strasbourg, Louis Pasteur University, France, 1994-1995. Dissertation: Electrical conductivity in carbonated rocks and oceanic dykes. (Director: Dr. André Revil)
- D.E.U.G. in Sciences of Structures and Matter, first year major in Fundamental Mathematics and Physics, second year major in Physics of the Earth, Louis Pasteur University, Strasbourg, France, 1993.

Relevant experience

Teaching at StFX

- ESCI575: Special topics in Geophysics, 2003-2008.
- ESCI571: Geographical Information Systems (Advanced level), winter 2007.
- ESCI475: Geophysics, 2004-2009.
- ESCI472: Ocean-Atmosphere Interactions, 2004-2006.
- ESCI471: Geographical Information Systems, 2007-2009.
- ESCI272: Global Change and the Climate System, 2004-2006.
- ESCI271: Environmental Earth Science, 2004-2009.
- ESCI246: Quantitative Methods in Earth Science, 2004-2009.

Teaching assistant at UQAM

- SCT5510: Plates Tectonics, 1998-2002.
- SCT2610: Applied Geophysics, 1998.

Scientific animation

- GEOTOP annual student meeting organization, 2000-2002.
- Organizer of weekly student discussion groups (“le Cirque du Geotop”) from 1998 to 2000.
- Guest lecture coordinator at StFX, Earth Sciences, 2004-2009.
- I have presided over a session at the American Geophysical Union - Canadian Geophysical Union Joint Meeting, Montreal, May 2004, Crustal Structure and Tectonics: Geophysical Observations and Models.

Evaluation Activities

I have been member of Master thesis committee for:

- Dana Nițoiu, deforestation effect on ground surface temperature,
- Lan Ying Zhao, snow cover effect on ground surface temperature,
- Krista Kavanaugh, soil nitrous oxide dynamics and harvesting,
- Bruce Stevens, ground heat flux models,
- Nick Nickerson, soil carbon dioxide emissions and gas transport physics.

I have been member of the committee on nomination to the American Geophysical Union Outstanding Student Paper Award in 2004, and to the Student Research Day at StFX from 2005 to 2008.

Computer skills

- Languages & Software: tcsh, bash, Fortran, Matlab, GMT, Latex, html/ccs, Web API, NIH Image, Envie, Geosoft, Divesco WinPics, ER-Mapper, ArcGIS, MapInfo and standard Office utilities. I received training in parallel computing and videoconferencing coordination on the AceNet network.
- Platforms: Unix, Linux, Dos, Windows, Mac OS X.
- Others: Maintenance of Windows and Linux systems.

Research Contributions

Papers

- Risk D.A., Nickerson N.R., Bourlon E., Phillips C., Kellman L., Moroni M. (2010) Drought alters respired $\delta^{13}\text{CO}_2$ from autotrophic, but not heterotrophic soil respiration, *in preparation for New Phytologist*.
- MacDougall A.H., Beltrami H., González-Rouco J.F., Bourlon E., Stevens B., Kellman L. (2010). Comparison of observed and general circulation model derived continental subsurface heat flux in the Northern Hemisphere, *Journal of Geophysical Research*, 115 (D12): D12109 DOI: 10.1029/2009JD013170. Chosen as AGU Editor's Highlight.
- Beltrami H., Bourlon E., Kellman L., González-Rouco J.F. (2006). Spatial patterns of ground heat gain in the northern hemisphere, *Geophysical Research Letters*, Vol. 33, L06717.
- Beltrami H. and Bourlon E. (2004). Ground warming patterns in Northern Hemisphere during the last five centuries, *Earth and Planetary Science Letter*, 227:169-177.
- Bourlon E., Mareschal J.-C., Roest W. R., Telmat H. (2002). Geophysical Correlations in the Ungava Bay Area, *Canadian Journal of Earth Sciences*, 39:625-637.

Non-refereed contributions

Invited lectures

- Bourlon E. (2007). Wavelet analysis of paleoclimate oscillations, Memorial University, Saint Johns NFL, Canada.
- Beltrami H., Bourlon E. (2004). Ground warming patterns and global continental heat gain during the last five centuries, The First International Mineralogy Days of Monaco, Monaco, September 15-17th, 2004.
- Bourlon E. (2004). Mechanical anisotropy of the Canadian lithosphere, St Francis Xavier University.

Meetings

- Risk D.A., Nickerson N.R., Jennifer O., Creelman C.A., McArthur G., Phillips C., Bourlon E., Hart C., Montenegro A., Burns E. (2010). Preparing for the future: a soil CO₂ observatory for the North American Arctic, ArcticNet, Annual Scientific Meeting, Ottawa, Canada, December 14-17, 2010.
- Creelman C. A., Risk D. A., Nickerson N. R., Simpson K., Bourlon E. (2009). Decision Support Process for CO₂ Monitoring Network Design, as applied to the North American Permafrost Region, American Geophysical Union, Fall Meeting, San Francisco, US, December 2009, abstract B33B-0393.
- Beltrami H., MacDougall A. H., Gonzalez-Rouco F. J., Stevens M. B., Bourlon E. (2009). Modelled and observed continental surface heat fluxes, American Geophysical Union, Fall Meeting, San Francisco, US, December 2009, abstract PP23B-1384.
- Bourlon E. and Levac E. (2007). Millennial Holocene Climate Oscillation from Paleoceanographic Records in Atlantic Canada, CMOS-CGU-AMS congress 2007, St Johns, Canada, May 28-June 1 2007, CO2-3DP2: 2130.
- Levac E. and Bourlon E. (2006). Millennial scale oscillations in paleoceanographic records from Atlantic Canada, GSA 2006 Philadelphia annual meeting, 22-25 October 2006, Paper 116161.
- Bourlon E. and Levac E. (2006). Centennial to millennial Holocene climate oscillations from palynological records in Atlantic Canada, GAC-MAC meeting in Montreal, 14-17 May 2006, SS14-428.
- Beltrami H., González-Rouco J.F., Harris R.N., Bourlon E., Ferguson G. (2006). Climate evolution in the last millennium: borehole reconstructions and model simulations, European Geosciences Union General Assembly, Vienna, Austria, April 2006. EGU06-A-09520.
- Beltrami H., Bourlon E. (2005). Spatial patterns of surface temperature and surface heat flux for the last 200 years in the northern hemisphere inferred from underground temperature data, Joint assembly of the GAC-MAC, CSPG and CSSS, Halifax, Canada, May 15-18, 2005.

- Bourlon E., Beltrami H. (2004). Worldwide recent ground surface warming pattern from borehole temperature profiles. New and Classical applications of Heat Flow Studies, Aachen, Germany, October 4-7th, 2004.
- Bourlon E., Beltrami H. (2004). Five centuries of global records of climate change from geothermal data. EOS Transactions. Joint Assembly of the CGU, AGU, SEG and EEGS, Montreal, Canada, May 17-21, 2004. 85(17):GC41A-05.
- Beltrami H., Bourlon E.(2004). Ground warming patterns in the northern hemisphere during the last five centuries. EOS Transactions. Joint Assembly of the CGU, AGU, SEG and EEGS, Montreal, Canada, May 17-21, 2004. 85(17):GC44A-03.
- Bourlon E. (2004). Wavelet investigation of geophysical signals, Student Colloquium, St Francis Xavier University.
- Audet P., Bourlon E., Mareschal J.-C. (2003). Variation in Elastic Thickness in the Canadian Shield, American Geophysical Union, 84(46), Fall Meeting Supplement, Abstract S22A-0439.
- Bourlon E. (2003). Geophysical investigations of the Precambrian basement beneath the sedimentary cover in Central Canada, Congrès des Etudiants du GEOTOP.
- Bourlon E. (2002). Epaisseur élastique de la lithosphère dans l'Est du Bouclier canadien, Congrès des Etudiants du GEOTOP.
- Bourlon E., Mareschal J.-C., Wang Y. (2001). Effective Elastic Thickness of the Eastern Canadian Shield, EOS Transactions, American Geophysical Union, 82(47), Fall meeting supplement, Abstract T32B-0885.
- Bourlon E. (2001). Analyse de données géophysiques à l'aide de la transformée en ondelettes: Application à l'orogène transhudsonien, Congrès des Etudiants du GEOTOP.
- Bourlon E., Mareschal J.-C., Roest W. R., Telmat H. (2000). Onshore-offshore Geophysical Correlations in the northeastern Canadian Shield, EOS Transactions, American Geophysical Union, 81(48), Fall meeting supplement, Abstract T21C-09.
- Lalonde D., Courteau G., Gariépy, C., Machado N., Mareschal J.-C., Stevenson R.K., Bourlon E., Bernier F., Isnard H. (2000). Isotopic, Geochronologic and Geophysical Compilations from the Canadian Shield: Contributions from the Centre de Recherche en Géochimie Isotopique et en Géochronologie (GEOTOP), *Canadian Society of Exploration Geophysicists Conference, GeoCanada 2000*, Calgary (Alberta), Abstract TS18-888.
- Bourlon E. (2000). Traitement de données géophysiques par transformée en ondelettes: Application à des profils aéromagnétiques au Brésil. Congrès des Etudiants du GEOTOP.
- Gaonac'h H., Lovejoy S., Mareschal J.-C., Pecknold S., Schertzer D., Bourlon E. (1999) Stratified Multifractales and Geopotential Fields, EOS Transactions, American Geophysical Union, 80(46), Fall Meeting Supplement, Abstract GP12B-04.
- Bourlon E., Gaonac'h H., Mareschal J.-C., Lovejoy S., Shertzer D. (1999). Anisotropic scaling of the Earth's Gravity Field, European Geosciences society Meeting, The Hague, NP001.

- Bourlon E., Mareschal J.-C., Gaonac'h H., Lovejoy S., Schertzer D. (1998). Anisotropic Scaling Rock Density and the Earth's Gravity Field, NVAGA4, Roscoff Meeting, Satellite conference of the International Conference on Statistical Physics, Paris 3.

Thesis

- Bourlon E. (2004). Analysis of gravity and magnetic fields in the Canadian Shield using standard and wavelet-based methods, PhD Thesis, D-096, Université du Québec à Montréal, 186PP, ISBN: 0612908356
- Bourlon E., Piqué A., Legall B. (1996) La limite Afrique-Europe dans la région du Banc de Gorringer: Apport de l'étude structurale des données de sismique réflexion profonde IAM (Iberian Atlantic Margin), Laboratoire de Géodynamique de Brest & Département de Géosciences Marines de l'IFREMER, France, rapport de DEA, 50pp.
- Bourlon E., Revil A. (1995). Etude de la conductivité électrique de roches carbonatées saturées, Laboratoire de physique des Roches de Strasbourg, rapport de Maîtrise, France, 18pp.

Popularization

Since its creation in 2002, I am collaborating in the writing of chronicles for a website initially for french-speaking 8 to 12-year-old children about volcanology on Earth and other planets (www.vickivolka.uqam.ca, ISSN 1705-1525).

Other

- Je parle français - I speak English - Ich spreche Deutsch.
- I received St. Francis Xavier University Annual Research, Publication, Teaching Award (URPTA) in 2005 and 2006.
- I hold an Emergency First Aid CPR Level A certificate (expires on Dec, 2011).
- I am French and Canadian citizen.

Last updated: January 4, 2011