

# **Marc-André Brideau**

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## **Education**

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Doctor of Philosophy (Earth Sciences)  
Simon Fraser University, Burnaby, Canada, May 2010

Master of Science (Earth Sciences)  
Simon Fraser University, Burnaby, Canada, November 2005

Bachelor of Science (Honors, Earth Sciences)  
Simon Fraser University, Burnaby, Canada, May 2002

## **Professional Association**

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Geoscientist-in-Training status with the Association of Professional Engineers and Geoscientists of British Columbia, June 2007

## **Employment Experiences**

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Lecturer (Engineering Geology)  
University of Auckland, Auckland, New Zealand  
May 2010 – present

Sessional Lecturer (Historical Geology)  
Simon Fraser University, Burnaby, Canada  
September 2009 – December 2009

Contract Instructor (Introduction to Geology; Introduction to Environmental Sciences)  
Douglas College, New Westminster, Canada  
September 2008 – December 2008

Staff Geoscientist (Terrain Mapping)  
Knight Piesold Ltd., Vancouver, Canada  
October 2007 – August 2008

Geoscientist-in-training (Engineering Geology)  
BGC Engineering, Vancouver, Canada  
May 2007 – October 2007

## Skills

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### Geotechnical

- Engineering geology mapping (discontinuity and rock mass description)
- Terrain mapping
- Geotechnical core logging (soil and rock)
- Index tests for soil and rock: particle size distribution (sieve, hydrometer, laser diffraction), liquid limit, plastic limit, linear shrinkage, point load, slake durability, cone indenter, Schmidt Hammer
- Field soil strength test and density: pocket penetrometer, shear vane, Eijelkamp penetrometer, dynamic cone penetrometer test (DCPT and Scala)
- Use of stereographic projections for structural and engineering geology analyses
- Terrestrial photogrammetry for rock mass characterization
- Use of GPS (Garmin handheld and RTK types)
- Use of Brunton and Clar compasses

### Geology

- Bedrock and structural geology mapping
- Quaternary section logging
- Petrography work (sedimentary, igneous and metamorphic)
- Organizing logistics for field season
- Living in isolated camps for extended period of time

### Geography

- Field geomorphology assessment for natural hazards
- Aerial photograph interpretation
- Forest soils recognition and description

### Computer

- Engineering geology: Dips, RocLab/RocData, RocFall, KBSlope, COLTOP-3D
- Limit equilibrium: CLARA-W, Slide, Swedge, Unwedge, Rocplane
- Finite element: Phase2
- Finite difference: FLAC
- Distinct element: UDEC, 3DEC
- Runout analysis: DAN-W, UBC-DFLOW
- GIS: ArcGIS
- Terrestrial photogrammetry: Sirovision

### Driver's license

First aid level 2

Pleasure Craft Operator Card

Experience using outboard motors and zodiac

Fluency in French and English

## Extracurricular Activities

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- New Zealand liaison to the International Society for Rock Mechanics, November 2011- present
- Handling editor for the journal "Landslides", August 2011 – present
- Member of NZ wide aggregate inventory group, June 2010 – present
- Peer reviewer for scientific journal (Geomorphology, Engineering Geology, Landslides, Geotechnical and Geological Engineering, Canadian Geotechnical Journal, Journal of Geophysical Research – Earth Surfaces), conference proceedings, and book chapters, March 2007 – present
- Invited lecture at the Epsom Branch of the University of the Third Age, August 2011
- Invited lecture at the Auckland Branch of the New Zealand Geotechnical Society, July 2011
- Invited session chair at the GEONZ 2010 conference, Auckland New Zealand, November 2010, and the 62<sup>nd</sup> Canadian Geotechnical Conference, Halifax, Nova Scotia, September 2009
- Gave radio and television interview to Radio-Canada regarding slope stability issues in British Columbia, October 2008 and January 2005
- Member of organising committee for 1<sup>st</sup> Canada-US Rock Mechanics Conference 2007 in Vancouver

## Scholarships and Awards

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- Dean of Graduate Studies Convocation Medal (Faculty of Science), Simon Fraser University, spring 2010
- President's PhD Research Stipend, Simon Fraser University, spring 2010
- National Graduate Scholarship, Canadian Foundation for Engineering, fall 2009
- Student sponsorship to attend GeoHalifax 2009 Conference, Vancouver Geotechnical Society, September 2009
- Graduate Fellowship, Department of Graduate Studies, Simon Fraser University, summer 2009, 2004
- Fieldwork Support Grant, Northern Scientific Training Program, Indian and Northern Affairs Canada, summer 2009, 2006, 2005 and 2004
- Best Student Oral Presentation, 4<sup>th</sup> Canadian Geohazards Conference, Quebec City, May 2008
- Postgraduate Scholarship, Natural Sciences and Engineering Research Council of Canada, summer 2006-spring 2007

## Publications

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### Refereed articles

Brideau, M.-A., Sturzenegger, M., Stead, D., Jaboyedoff, M., Lawrence, M., Roberts, N.J., Ward, B.C., Millard, T.H., Clague, J.J., in press. Stability analysis of the 2007 Chehalis Lake landslide based on long-range terrestrial photogrammetry and airborne-LiDAR data. Landslides, DOI 10.1007/s10346-011-0286-4

Brideau, M.-A., Pedrazzini, A., Stead, D., Froese, C., Jaboyedoff, M., and van Zeyl, D., 2011. Three-dimensional slope stability analysis of South Peak, Alberta, Canada. *Landslides*. 8(2): 139-158.

Brideau, M.-A., and Stead, D., 2010. Controls on block toppling using a three-dimensional distinct element approach. *Rock Mechanics and Rock Engineering*. 43(3): 241-260.

Brideau, M.-A., Yan, M., and Stead, D., 2009. The role of tectonic damage and brittle rock fracture in the development of large rock slope failures. *Geomorphology*. 103(1): 30-49.

Brideau, M.-A., Stead, D., Roots, C., and Orwin, J., 2007. Geomorphology and engineering geology of a landslide in ultramafic rocks, Dawson City, Yukon. *Engineering Geology*. 89(3/4): 171-194.

Brideau, M.-A., Stead, D., and Couture, R., 2006. Structural and engineering geology of the East Gate Landslide, Purcell Mountains, British Columbia, Canada. *Engineering Geology*. 84(3/4): 183-206.

Brideau, M.-A., Stead, D., Kinakin, D., and Fecova, K., 2005. The influence of tectonic structures at the Hope Slide, *Engineering Geology* 80 (3/4): 142-159.

Laughton J.R., Thorkelson, D.J., Brideau, M-A, Hunt, J.A., and Marshall, D., 2005. Fall-back vent facies of Wernecke Breccia, Yukon, Canada: implications for Racklan orogeny in northwestern Laurentia. *Canadian Journal of Earth Sciences* 42(6): 1033-1044

### **Extended conference proceedings**

Brideau, M.-A., Massey, C.I., Archibald, G., and Jaboyedoff, M., paper submitted. Terrestrial photogrammetry and LiDAR investigation of the seismically triggered rockfalls during the February and June 2011 Christchurch earthquakes. Joint 11th International Symposium on Landslides (ISL) and 2nd North American Symposium on Landslides (NASL), June 2012, Banff Canada.

Brideau, M.-A., Chauvin, S., Andrieux, P., Stead, D., paper submitted. Influence of 3D statistical discontinuity variability on slope stability conditions. Joint 11th International Symposium on Landslides (ISL) and 2nd North American Symposium on Landslides (NASL), June 2012, Banff Canada.

Brideau, M.-A., and Stead, D., 2011. The influence of three-dimensional kinematic controls on rock slope stability. In: D. Sainsbury , R. Hart, C. Detournay, and M. Nelson (eds.) Proceedings of the 2<sup>nd</sup> International FLAC/DEM Symposium, Melbourne, Australia, pp. 213-220.

Brideau, M.-A., McDougall, S., Stead, D., Couture, R., Evans, S. and Turner, K. 2010. Three-dimensional numerical modelling of the failure mechanisms and runout at the 2002 McCauley Creek Landslide, British Columbia, Canada, In: A.L. Williams, G.M. Pinches, C.Y. Chin, T.J. McMorran, and C.I. Massey (eds.) Proceedings of the 11<sup>th</sup> IAEG Congress, Auckland, New Zealand, pp. 53-62.

Sivak, T., Brideau, M.-A., Stead, D, and Couture, R., 2010. Preliminary analysis of the failure mechanism at the Nomash River Landslide, Vancouver Island, British Columbia, Canada. In: A.L. Williams, G.M. Pinches, C.Y. Chin, T.J. McMorran, and C.I. Massey (eds.) Proceedings of the 11<sup>th</sup> IAEG Congress. Auckland, New Zealand, pp. 691-99.

Brideau, M.-A., and Stead, D., 2009. The role of rear release surfaces, block size and lateral confinement on rock slope failure mechanisms. 62<sup>nd</sup> Canadian Geotechnical Conference. Halifax, NS, Canada. September 2009, pp. 489-496.

Brideau, M.-A., Pedrazzini, A., Stead, D., Froese, C., Jaboyedoff, M., 2009. Preliminary two- and three-dimensional numerical analyses of the South Peak area, Turtle Mountain, Alberta. 62<sup>nd</sup> Canadian Geotechnical Conference. Halifax, NS, Canada, pp. 382-389.

Brideau, M.-A., Stead, D. and Couture, R., 2008. The 1999 Clanwilliam Landslide: A preliminary analysis of the potential failure mechanisms. In: J. Locat, D. Perret, D. Turmel, D. Demers and S. Leroueil (eds), 4<sup>th</sup> Canadian Conference on Geohazards:, Quebec City, Quebec, pp. 263-270.

Brideau, M.-A., Stead, D., Millard, T., and Patton, G., 2006. Runout characteristics of open slope landslides in harvested terrain on Vancouver Island: Preliminary results of an integrated field-dynamic modelling based study. 59<sup>th</sup> Canadian Geotechnical Conference, Vancouver, BC, pp. 342-350.

Brideau, M.-A., Thorkelson, D.J., and Godin L., 2002. Racklan orogeny: deformational features and correlations in northwestern Canada. Lithoprobe: SNORCLE and Cordilleran Tectonics Workshop, Victoria, BC, pp. 53-55.

## **Non-refereed articles**

Brideau, M.-A., Stead, D., Bond, J., Lipovsky, P., and Ward, B.C., 2011. Preliminary stratigraphic and geotechnical investigation of the glaciolacustrine and loess deposits around the city of Whitehorse (NTS 105D/11), Yukon. In: K.E. McFarlane, L.H. Weston and C. Relf (eds.), Yukon Exploration and Geology 2010. Yukon Geological Survey pp. 33-53.

Brideau, M.-A., Stead, D., Lipovsky, P., Jaboyedoff, M., Hopkinson, C., Demuth, M., Barlow, J., Evans, S. and Delaney, K., 2010. Preliminary description and slope stability analyses of the 2008 Little Salmon Lake and 2007 Mt. Steele landslides, Yukon. In: Yukon Exploration and Geology 2009, K.E., MacFarlane, L.H. Weston, and L.R. Blackburn (eds.), Yukon Geological Survey pp.119-133.

Brideau, M.-A., Stead, D., Stevens, V., Roots, C., Lipovsky, P., and VonGaza, P., 2007. Dawson City Landslide (Dawson map-area 1161B/3) Yukon, D.S.Emond, Lewis, L.L., Weston, L.H. (eds.) Yukon Exploration and Geology 2006, Yukon Geological Survey pp. 123-137.

Brideau, M.-A., Stead, D., Huscroft, C., and Fecova, K., 2005. Quaternary, structural and engineering geology of the Aishihik River landslide (Cracker Creek area 115A/15), D.S. Emond, Lewis, L., Bradshaw, G., (eds.) Yukon Exploration and Geology 2004, Yukon Geological Survey pp.83-94.

Brideau, M.-A., Thorkelson, D.J., Godin, L., and Laughton, J.R., 2002. Paleoproterozoic deformation of the Racklan Orogeny, Slats Creek (106D16) and Fairchild Lake (106C/13) map areas, Wernecke Mountains, Yukon. In : Yukon Exploration and Geology 2001, D.S. Emond, and L.H. Weston (eds.), Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, pp.65-72.

## **Conference abstracts**

Baddiley, M., Brideau, M.-A., and Dickson, M., 2011. Rock mass characterization and numerical modelling of coastal cliff failures in weak rocks in the Auckland-region. Geosciences 2011, November 2011, Nelson, New Zealand.

de Vilder, S., and Brideau, M.-A., 2011. The Mangapapa landslide dam: A geological and geotechnical assessment. Geosciences 2011, November 2011, Nelson, New Zealand.

Brideau, M.-A., Sturzenegger, M., Stead, D., Jaboyedoff, M., Lawrence, M., Roberts, N.J., Clague, J.J., Ward, B.C., and Millard, T.H., 2011. Structural controls on the 2007 Chehalis Lake landslide, British Columbia, Canada. EGU General Assembly, April 2011, Vienna, Austria. EGU2011-5233.

Brideau, M.-A., 2011. Large landslide complex in weak rock at Cape Turnagain, North Island New Zealand. EGU General Assembly, April 2011, Vienna, Austria. EGU2011-5228.

Linnell, T., Brideau, M.-A., Procter, J.N., 2011. Contrasting the morphology and internal structure of hummocky mounds in two rock avalanche deposits, North Island, New Zealand. EGU General Assembly, April 2011, Vienna, Austria. EGU2011-5221.

Brideau, M.-A., and Stead, D., 2010. Engineering geological mapping of a large strato-volcano slope failure in northern British Columbia, Canada. GeoNZ 2010, November 2010, Auckland, New Zealand, p. 44.

Ritchie, C., and Brideau, M.-A., 2010. Slope failure in volcanic materials at the Te Toto Amphitheatre, Raglan. GeoNZ 2010, November 2010, Auckland, New Zealand, p. 241.

## **Theses**

Brideau, M.-A., 2010, Three-dimensional controls on rock slope stability conditions. Unpublished Ph.D. thesis. 411 p.

Brideau, M.-A., 2005, The influence of tectonic structure on rock mass quality and implications for rock slope stability. Unpublished M.Sc. thesis. 198 p.

Brideau, M.-A., 2002, Structural analysis, metamorphic conditions and regional correlations of the Paleoproterozoic Racklan orogeny, Wernecke Mountains, Yukon. Unpublished B.Sc. thesis. 50 p.