

# Dr. Phil J.A. McCausland

# Curriculum Vitae

Director, Western Paleomagnetic and Petrophysical Laboratory (WPPL)

Adjunct Professor

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<http://www.uwo.ca/earth/people/faculty/mccausland.html>

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## RESEARCH INTERESTS

*Paleomagnetism and allied techniques* applied to the study of supercontinent assembly and dispersal, paleogeography, geodynamics, terrane tectonics and orogeny

*Petrophysical properties and mineralogy of Earth & planetary materials* as it relates to mineral exploration, meteoritics, and the evolution of the Earth and small bodies of the Solar System

## EDUCATION

Ph.D., Geophysics, University of Western Ontario, 2002.

“Geotectonic motions of the Yukon-Tanana terrane, northern Cordillera: Paleomagnetism and geobarometry of Mesozoic and Cenozoic intrusions” (advisors D.T.A. Symons, H.C. Palmer)

M.Sc., Geophysics, Memorial University of Newfoundland, 1998.

“Palaeomagnetism of the Skinner Cove Formation of Western Newfoundland and the birth of the Iapetus Ocean” (advisor J.P. Hodych)

B.Sc. Honours, Geology, Memorial University of Newfoundland, 1995.

“Palaeomagnetism and U-Pb Zircon Age of the Skinner Cove Volcanics of Western Newfoundland” (advisor J.P. Hodych)

## PRESENT SCHOLARLY & PROFESSIONAL ACTIVITIES

Senior Representative for Canada to IAGA (International Association of Geomagnetism and Aeronomy) 2015 – present

Councillor, Geological Association of Canada 2019 – present

Past President, Solid Earth Section of the Canadian Geophysical Union 2017 – present

Secretary-Treasurer, Geophysics Division of the GAC 2013 – present

Meteorite Impact Advisory Committee – National Fireball Coordinator 2014 – present

Participant, IGCP 648 “Supercontinent Cycles & Global Geodynamics”

## HONOURS & AWARDS

Canadian Geophysical Union, Meritorious Service Award 2020

Western University USC Teaching Honour Roll - Award of Excellence 2014 – 2015

W.F. James Professor of Pure and Applied Sciences  
St. Francis Xavier University 2012

APICS-AGS Distinguished Lecturer 2006 – 2007  
Atlantic Geoscience Society & the Atlantic Provinces Council on the Sciences

Turner Postdoctoral Fellowship 2002 – 2005  
Department of Geological Sciences, University of Michigan

Fellow of the School of Graduate Studies 1997  
Memorial University of Newfoundland

**RESEARCH FUNDING – Awarded**

2019 – 2024	\$125,000	[100%]
Natural Sciences & Engineering Research Council – Discovery Grant “Global paleogeography and geodynamics of the Proterozoic to Paleozoic transition”		
2018 – 2019	\$175,000	[5%]
Canadian Space Agency – IS-XRD Concept study R.L. Flemming (PI) and twelve co-investigators: “Miniaturized in situ X-ray diffractometer for mineralogical characterization of planetary surfaces”		
2013 – 2019	\$168,000	[100%]
Natural Sciences & Engineering Research Council – Discovery Grant “Relationship between paleomagnetism and tectonics during signature events in the assembly and dispersal of supercontinents”		
2015 – 2016	\$24,970	[100%]
Natural Sciences & Engineering Research Council – Engage Grant, with industrial partner Stillwater Canada Inc.		
2016	\$144,985	[10%]
Natural Sciences & Engineering Research Council – Research Tools and Instruments (RTI) R.L. Flemming (PI) and McCausland, P.J.A., deBruyn, J., Hutter, J., Osinski, G.R. and Schmidt, M.E.: “Upgrades to Bruker D8 Discover Micro X-ray Diffractometer”		

**RESEARCH EXPERIENCE**

Director, Western Paleomagnetic and Petrophysical Laboratory,	September 2013 – present
Adjunct Professor, Department of Earth Sciences, University of Western Ontario	
Adjunct Professor	September 2018 – present
Department of Earth Sciences, Brock University	
Assistant Professor	September 2017 – August 2018
Department of Earth Sciences, Brock University	
Adjunct Professor	September 2015 – present
Department of Earth and Environmental Sciences, University of Windsor	
Assistant Professor	September 2012 – August 2015
Department of Earth Sciences, University of Western Ontario	
Coordinator of ASTRO (Astromaterials Training and Research Opportunities) Cluster, Canadian Space Agency	September 2012 – August 2015
W.F. James Professor of Pure and Applied Sciences St. Francis Xavier University	May – August 2012
Paleogeography of Avalonia and the assembly of Pangea	
Postdoctoral Fellow (P. Brown, G. Osinski)	January – April 2012
Department of Earth Sciences, University of Western Ontario	
Meteorite physical properties; curation best practices	
NSERC Engage Postdoctoral Fellow (D.T.A. Symons)	November 2011 – February 2012
Department of Earth & Environmental Sciences, University of Windsor	
Paleomagnetic investigation of the timing of dolomitization and ore-forming events at the Pine Point Zn-Pb mine, NWT	

Dr. Phil J.A. McCausland  
 Research Fellow (J.B. Murphy) September – October 2011  
 Department of Earth Sciences, St. Francis Xavier University  
 Paleomagnetic investigation of mid-Paleozoic volcanics and redbeds related to the development of the Gulf of St. Lawrence basin

CPSX Postdoctoral Fellow May 2009 – June 2011  
 (P. Brown, R. Flemming & A. Hildebrand [U. Calgary])  
 Centre for Planetary Science & Exploration, University of Western Ontario  
 Tagish Lake carbonaceous chondrite bulk properties and parent body alteration; Micro XRD measurement of shock metamorphism; X-ray Micro-CT imaging of meteorites; Lead investigator of the recovery and description of the September, 2009 Grimsby meteorite fall

Research Fellow (J.B. Murphy and S. Pisarevsky) August 2006 – July 2007  
 Department of Earth Sciences, St. Francis Xavier University  
 Paleomagnetic, geochronologic and geochemical fieldwork and research conducted on Late Neoproterozoic rocks of eastern Laurentia and Avalonia

Postdoctoral Fellow (P. Brown and R. Flemming) August 2005 – May 2008  
 Department of Earth Sciences, University of Western Ontario  
 Solar system processes via bulk material properties (bulk density, porosity, magnetic properties) and mineralogy of meteorites; Curator of UWO meteorite collection

Turner Postdoctoral Fellowship (R. Van der Voo) July 2002 – June 2005  
 Department of Geological Sciences, University of Michigan  
 Paleomagnetic and geochronologic research on the Late Neoproterozoic to Cambrian paleogeography of Laurentia and the opening of the Iapetus Ocean; Paleozoic motions and deformation of the Kazakhstan continental elements during the assembly of Eurasia

## TEACHING EXPERIENCE

**Brock University, Earth Sciences** 2017 – 2019  
 ERSC 3P99 co-instructor, Geological Field Experience (April-May 2018; April-May 2019)  
 ERSC 2P22 Optical Mineralogy (Winter 2018)  
 ERSC 4P16 Precambrian Geology (Winter 2018)  
 ERSC 2P21 Mineralogy and mineral associations (Fall 2017)  
 ERSC 3P21 Igneous and metamorphic petrology (Fall 2017)  
 ERSC 3P96 Special Topics: Supercontinent Cycle and Tectonics (Fall 2017)  
 ERSC 4F99 Senior Thesis class (2017-2018)

**University of Western Ontario, Earth Sciences** 2012 – 2015  
 ES 2250Y co-instructor, Geological Field School for 2<sup>nd</sup> year students (2015)  
 ES 4490E Senior Thesis class (2013-2014; 2014-2015)  
 ES 4450Y co-instructor Fourth Year Field School in Atlantic Canada (Fall 2014)  
 ES 1086G “Origin & Geology of the Solar System” –online offering (Winter 2014)  
 PS 9603A Lecturer for Astromaterials, Planetary Science Graduate Course (Sept 2013)  
 ES 2240G “Catastrophic Events in Earth History” –online offering (Winter 2013)  
 ES 1081a “Resources, Environment and Sustainability in a Material Society” (Fall 2012)

**St. Francis Xavier, Earth Sciences** September – November 2011  
 Lead lecturer, Graduate course on “Paleomagnetic Methods and Tectonic Applications”

**Carleton University, Earth Sciences** January – April 2009  
 EARTH 2102 “Mineralogy to Petrology” (Winter 2009)  
 EARTH 1007 “Dynamic Earth” (Winter 2009)

**University of Windsor, Earth & Environmental Sciences**

May, 2008

Co-led 2<sup>nd</sup> year Field School: Geological field camp in North Bay region

**University of Western Ontario, Earth Sciences**

September – December 2007

ES 2260 (formerly 260) Sessional Lecturer 2nd yr Earth Sciences course “Stratigraphy & Sedimentology: From Beds to Basins”

**University of Michigan, Department of Geological Sciences**

2004 – 2005

Lecturer of 2nd year “Dynamic Earth” (Winter 2005)

Co-lecturer of 2nd year “Environmental Geology” (Fall 2004)

Lecturer of 1st-year “Plate Tectonics” to non-Earth Science majors (Winter 2004).

### **Guest lectures**

PLANETSC 9603A “Early Solar System” (Summer, 2019)

GL9577 Borehole Logging “Petrophysical properties in drillcore samples” (Fall, 2016)

PLANETSC 9603A “Astromaterials” (Summer, 2013)

### **STUDENT SUPERVISION & MENTORING**

#### **i) McCausland Group Graduate Students**

1. Li, Yaozhu (September 2018 – present; co supervised with R. Flemming)  
Ph.D. Planetary Science, University of Western Ontario

#### ***Graduate Alumni***

2. Li, Yaozhu (September 2016 – August 2018; *completed*; co supervised with R. Flemming)  
M.Sc. Planetary Science, University of Western Ontario: “Ureilite meteorite record of shock metamorphism and parent body processes”
3. MacRae, Michelle (September 2015 – December 2017; *completed*; co-supervised with J. Jin)  
M.Sc. Geology, University of Western Ontario: “Ordovician continental paleogeography and paleoenvironment for the Michigan basin from paleomagnetic and faunal analysis”
4. Thomson, Andrew (Sept. 2014 – December 2017; *completed*; co-supervised with C. Tsujita)  
M.Sc. Geology, University of Western Ontario: “Quantitative analysis of Middle Devonian coral growth ridges for paleoenvironmental and geodynamic purposes”
5. Warsame, Halima (September 2015 – October 2017; *completed*; co-supervised with C. Tsujita)  
M.Sc. Geology, University of Western Ontario: “Paleogeography of Early Paleozoic Laurentia and Meguma, Avalonia terranes via paleomagnetism and faunal analysis”
6. Gunawardana, Hiruni (Sept. 2015 – October 2017; *completed*; co-supervised with G. Pratt) M.Sc. Geophysics, University of Western Ontario: “Petrophysical Properties and 3D modeling of sulphide mineralization distribution at the Marathon Cu-PGE deposit, Marathon, Ontario”
7. Uribe, Diego (Sept. 2014 – Aug.2017; *completed*; co supervised M. Izawa and R. Flemming)  
M.Sc. Planetary Science, University of Western Ontario: “Primitive enstatite achondrites as indicators of environments and processes during early planetary differentiation”
8. Sara, Sundeep (May 2016 – April 2017; *completed*)

Acc. M.Sc. Geology, University of Western Ontario: “Analysis of NI 43-101 effectiveness: Case study approach”

9. Fernandes, Earl (September 2014 – August 2015; *completed*)  
Acc. M.Sc. Geology, University of Western Ontario: “Magnetic fabric study and the emplacement of sulfide deposits in the North Range offset dykes of the Sudbury Impact Structure, Ontario, Canada”

## ii) McCausland Group Honours B.Sc. students

1. Brooks, Kate (September 2019 – present; co supervised with C. Eyles, McMaster University): “Paleomagnetic Study of Devonian age Fountain Lake Group Volcanics, Cobequid Highlands, Nova Scotia”

### *B.Sc. Alumni*

2. Paterson, Rhys (B.Sc. Geology, 2018, Brock University): “Paleomagnetic and petrophysical analysis of Ordovician units sampled in the proposed Deep Geological Repository for nuclear waste, Kincardine, ON”
3. Deng, Mingzhen (Lindsay) (B.Sc. Geology, 2018, University of Western Ontario): “Chondrule shapes and fabric of the Tagish Lake ungrouped C2 chondrite by X-ray micro CT”
4. Siewnarine, Jordan (B.Sc. Geology, 2018, University of Western Ontario, co-supervised with C. Tsujita): “Analysis of Baculitid Ammonites and Fossiliferous Concretions Using Micro – CT”
5. Gunawardana, Hiruni (B.Sc. Geology, 2015, University of Western Ontario): “Devonian paleoposition of Avalonia and Laurentia using paleomagnetic data from the McAras Brook Formation, Nova Scotia”
6. Uribe, Diego (B.Sc. Geology 2014, University of Western Ontario): “Investigation of the mineralogical record of fireball fragmentation events in meteorite fusion crust”
7. Bramble, Michael (B.Sc. Planetary Science 2014, University of Western Ontario, co-supervised with R. Flemming): “Quantification of grain size by 2D micro-XRD”
8. Pol, Joshua (B.Sc. Geology 2014, University of Western Ontario, co-supervised with C. Tsujita): “Analysis of Middle Devonian coral growth ridges by means of quantitative visual based methods”
9. Rupert, Alexandra (B.Sc. Geology 2014, University of Western Ontario, co-supervised with R. Flemming): “Quantification of ordinary chondrite shock metamorphism using micro-XRD”
10. Round, Stephanie (B.Sc. Geology 2010; University of Western Ontario, co-supervised with R. Flemming): “Classification of meteorites by olivine unit cell using micro X-ray diffraction”
11. Brown, Ross L. (B.Sc. Geophysics 2006; University of Western Ontario, co-supervised with L. Mansinha): “Locating subsurface structures by means of Ground Penetrating Radar and Magnetometer Surveys”

## iii) Undergraduate employment and mentorships

1. Brooks, Kate (summer, 2019)  
NSERC USRA - University of Western Ontario

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- 2. Deng, Mingzhen (Lindsay) (work study 2016-17; summer hire, 2017; 2018)  
Research assistant, Paleomagnetic Laboratory
- 3. Jenkins, Laura (summer 2016; co-supervised with R. Flemming)  
NSERC CREATE Fellowship – University of Western Ontario
- 4. Kosmala, Anna (work study 2015 – 2016)  
Research assistant, Paleomagnetic Laboratory
- 5. Sara, Sundeep (work study 2015 – 2016)  
Research assistant, Paleomagnetic Laboratory
- 6. Warsame, Halima (summer, 2015)  
Research assistant, Paleomagnetic Laboratory
- 7. Cunningham, Celeste (summer, 2015)  
NSERC USRA - University of Western Ontario
- 8. Houde, Victoria (summer, 2015; co-supervised with R. Flemming)  
CSA-ASTRO - University of Western Ontario
- 9. Gunawardana, Hiruni (summer 2014; summer 2015)  
Research assistant, Paleomagnetic Laboratory
- 10. Hoefs, Ryan (work study 2014 – 2015)  
Research assistant, Meteorite Laboratory
- 11. Bajwa, Courtney (work study 2014 – 2015)  
Research assistant, Meteorite Laboratory
- 12. Uribe, Diego (summer 2014)  
Research assistant, Meteorite Laboratory
- 13. O'Connor, Amanda (summer 2014; co-supervised with E. Webb)  
Undergraduate CSA-ASTRO Research Award, University of Western Ontario
- 14. MacRae, Michelle (summer 2014; co-supervised with R. Flemming and G. Osinski)  
Undergraduate CSA-ASTRO Research Award, University of Western Ontario
- 15. CoDyre, Sarah (summer 2014; co-supervised with R. Flemming)  
Undergraduate CSA-ASTRO Research Award, University of Western Ontario
- 16. Nigim, Jamal (summer 2014; co-supervised with P. Simpson)  
Undergraduate CAMBR Research Award, University of Western Ontario
- 17. Bramble, Michael (summer 2013)  
NSERC USRA - University of Western Ontario
- 18. Uribe, Diego (summer 2013)  
Undergraduate CSA-ASTRO Research Award, University of Western Ontario

**iv) Graduate Committees and Examinations**

**Member of thesis advisory committee for:**

Lloyd, Simon (Ph.D. candidate, *University of Liverpool*); supervised by Andy Biggin  
 Thallner, Daniele (Ph.D. candidate, *University of Liverpool*); supervised by Andy Biggin  
 Aviles, Mayling (Ph.D. candidate); supervised by Burns Cheadle and Guy Plint  
 Zylberman, William (Ph.D., 2017); supervised by Gordon Osinski and Yoann Quesnel  
 Anders, Denise (Ph.D., 2016); supervised by Gordon Osinski and Richard Grieve

Kouhi, Derek (M.Sc., 2016); supervised by Kristy Tiampo and Bob Linnen

**Graduate Thesis examiner** (at *University of Western Ontario*, unless otherwise noted)

Hyde, Brendt (Feb 2020) Ph.D. Planetary Sciences, supervised by D. Moser, K. Tait

Farrell, Sarah (June 2019) M.Sc. Geophysics *Memorial University* (external examiner)

Morse, Zachary (Dec 2018) Ph.D. Planetary Sciences, supervised by G. Osinski

Vargas, Luis (Sept 2018) M.Sc. Geology *Brock University* (external examiner)

Werynski, Alyssa (July 2018) M.Sc. Geology, supervised by C. Neish

Marion, Kienan (June 2018) M.Sc. Geology, supervised by B. Cheadle

Gushulak, Cale (Aug 2016) M.Sc. Geology, supervised by J. Jin

Klein, Robert (March 2016) Ph.D. Geology *University of Helsinki* (external examiner)

Coulter, Adam (Dec 2015) M.Sc. Geology, supervised by G. Osinski

Bingham-Koslowski, Nikole (Aug 2015) Ph.D. Geology, supervised by C. Tsujita and J. Jin

Buitenhuis, Eric (Dec 2013) M.Sc. Geology, supervised by N. Duke and C. Finnegan

Shankar, Bhairavi (Mar 2013) Ph.D. Planetary Sciences, supervised by G. Osinski

Battler, Melissa (Dec 2012) Ph.D. Planetary Sciences, supervised by N. Banerjee, G. Osinski

**v) Other Mentorship**

Mentorship of graduate students (supervisors appear in brackets):

J. Pentesco (M. Schmidt, *Brock*)

C. Fry (C. Sampson and R. Herd, *Carleton*)

C. Charles (D. Davis, *U Toronto*)

M.R.M. Izawa (R. Flemming and N. Banerjee, *Western*)

A. Singleton (G. Osinski and D. Moser, *Western*)

K. van Drongelen, (K. Tait, *U Toronto*).

Mentorship of visiting students in WPPL

R. Morco (C. Wren, *Western*)

A. Pontefract (G. Southam and G. Osinski, *Western*)

**CONTRIBUTIONS TO RESEARCH**

	Total	Lead AU	citations (Web of Science)
Refereed Journal articles:	52	10	total 1773; H=16
Refereed other publications:	10	7	Google <a href="#">Scholar citations</a>
Articles submitted / in revisions:	4	0	
Conference abstracts:	126	45	

*My students listed in italics*; mentored students (of collaborators) noted with asterisk\*.

**i) Refereed Journal Publications**

1. *Li, Y., McCausland, P.J.A. and Flemming, R.L. accepted.* Quantitative analysis of in situ 2D X-ray diffraction data from complex crystal deformation using the Best Fit for Complex Peaks (BFCP) code in Matlab®. *Computers and Geosciences*.
2. *Warsame, H.S, McCausland, P.J.A., White, C.E., Barr, S.M., Dunning, G.R. and Waldron, J.W.F. accepted.* Meguma terrane oroclinal U-Pb age and paleomagnetism of the Silurian Mavillette gabbro, Nova Scotia, Canada. *Canadian Journal of Earth Sciences*.
3. *Rupert, A.N., McCausland, P.J.A. and Flemming, R.L. accepted.* Ordinary Chondrite Shock Stage Quantification using in situ 2D X-Ray Diffraction of olivine. *Meteoritics and Planetary Science*.
4. Charles, C.R.J.\*, McCausland, P.J.A. and Davis, D.W. 2020. LA-ICP-MS Pb isotope test of meteorite provenance: A Terrestrial Origin for Lovina. *Meteoritics and Planetary Science*. doi: 10.1111/maps.13492-3296

5. van Staal, C.R., Barr, S.M., McCausland, P.J.A., Thompson, M.D. and White, C.E. 2020. Ediacaran-Early Cambrian interactions with Ganderia: an example of complex terrane transfer due to arc-arc collision. *Geological Society of London Special Publications*. v. 503, doi: 10.1144/SP503-2020-23
6. Jenkins, L.E., Flemming, R.L. and McCausland, P.J.A. 2019. Quantitative in situ XRD Measurement of Shock Metamorphism in Martian Meteorites Using Lattice Strain and Strain-Related Mosaicity in Olivine. *Meteoritics and Planetary Science* v 54, pp 902-918, doi: 10.1111/maps.13245
7. Gauthier, M.S., Hodder, T.J., Ross, M., Kelley, S.E., Rochester, A.\* and McCausland, P.J.A. 2019. Glacial record of the southwestern Hudson Bay region and its significance for long-term ice sheet behaviour. *Quaternary Science Reviews* v 214, pp 1-27.
8. Fry, C.\*, Samson, C., McCausland, P.J.A., Herd, R.K., Ralchenko, M.\* and McLeod, T.K.\* 2018. Iron meteorite bulk densities determined via 3D laser imaging, *Meteoritics and Planetary Science* v 53, doi: 10.1111/maps.13067
9. Oliver, P.\*, Ralchenko, M.\*, Samson, C., Ernst, R.E., McCausland, P.J.A. and West, G.F. 2018. Enhanced non-destructive characterization of ordinary chondrites using complex magnetic susceptibility measurements. *Meteoritics and Planetary Science* v 53, pp 433-447, doi: 10.1111/maps.13028
10. Charles, C.R.J.\*, Robin, P-Y., Davis, D.W. and McCausland, P.J.A. 2018. The 3D structure of metal shells in armoured chondrules from the NWA 801 CR2 chondrite. *Meteoritics and Planetary Science* v 53, pp 935-951, doi: 10.1111/maps.13038
11. Symons, D.T.A., Kawasaki, K.\*, McCausland, P.J.A. and Hart, C.J.R. 2016. Paleopole for the 69 Ma Prospector Mountain Stock: A critique of the Carmacks / "Baja BC" transport estimate for Yukon, Canada. *Geophysical Journal International* v 208, pp 349–367, doi: 10.1093/gji/ggw398
12. Pontefract, A.\*, Osinski, G.R., Cockell, C.S., Southam, G., McCausland, P.J.A., Umoh, J. and Holdsworth, D.W. 2016. Microbial diversity of impact-generated habitats. *Astrobiology* v 16, pp 775-786, doi: 10.1089/ast.2015.1393
13. Bramble, M.S., Flemming, R.L., and McCausland, P.J.A. 2015. Grain size measurement from two-dimensional micro-X-ray diffraction: Laboratory application of a radial integration technique. *American Mineralogist*, v. 100, p. 1899-1911, doi:10.2138/am-2015-5181
14. Symons, D.T.A., McCausland, P.J.A., Kawasaki, K.\* and Hart, C.R. 2015. Post-Triassic para-autochthoneity of the Yukon-Tanana Terrane: Paleomagnetism of the Early Cretaceous Quiet Lake Batholith. *Geophysical Journal International*, v 203, pp 312–326, doi: 10.1093/gji/ggv296
15. Samson, C., Butler, S., Fry, C.\*, McCausland, P.J.A., Herd, R.K., Sharomi, O., Spiteri, R.J. and Ralchenko, M.\* 2014. 3-D Laser images of splash-form tektites and their use in aerodynamic numerical simulations of tektite formation. *Meteoritics and Planetary Science* v 49, pp 740-749, doi: 10.1111/maps.12287
16. Fry, C.\*, Melanson, D., Samson, C., McCausland, P.J.A., Herd, R.K., Ernst, R.E., Umoh, J. and Holdsworth, D.W. 2013. Physical characterization of a suite of Buzzard Coulee H4 chondrite fragments. *Meteoritics and Planetary Science* v 48, pp 1-13, doi: 10.1111/maps.12130
17. Jin, J., Harper, D.A.T., Cocks, L.R.M., McCausland, P.J.A., Rasmussen, C.M.Ø. and Sheehan, P.M. 2013. Locating the Late Ordovician equator in Laurentia using palaeobiological and palaeomagnetic data. *Geology* v 41, pp 107-110; doi:10.1130/G33688.1 [highlighted in: Editor's Choice, *Science* Dec 14, 2012]



18. McCausland P.J.A., Flemming, R.L., Wilson, G.C., Renaud, J., Dillon, D. and Holdsworth, D.W. 2013. The Wood Lake, Ontario H4 ordinary chondrite, a new Canadian meteorite. *Canadian Journal of Earth Sciences* v 50, pp 32-43.
19. Wilson, G.C. and McCausland, P.J.A. 2013. Canadian meteorites: a brief review. *Canadian Journal of Earth Sciences* v 50, pp 4-13.

#### **2012 and before**

20. Bazhenov, M.L., Levashova, N.M., Degtyarev, K.E., Van der Voo, R., Abrajevitch, A.V.\* and McCausland, P.J.A. 2012. Unravelling the Early-Middle Paleozoic paleogeography of Kazakhstan on the basis of Ordovician and Devonian paleomagnetic results. *Gondwana Research* v. 22, pp. 974 – 991.
21. Torsvik, T.H., Van der Voo, R., Preeden, U., MacNiocaill, C., Steinberger, B., Doubrovine, P.V., van Hinsbergen, D.J.J., Domeier, M., Gaina, C., Tohver, E., Meert, J.G., McCausland, P.J.A., and Cocks, L.R.M. 2012. Phanerozoic polar wander, palaeogeography and dynamics. *Earth Science Reviews*, v. 114, no. 3-4, p. 325-368.
22. Pisarevsky, S.A., McCausland, P.J.A., Hodych, J.P., O'Brien, S., Tait, J.A. and Murphy, J.B. 2012. Paleomagnetic study of the Late Neoproterozoic Bull Arm and Crown Hill Formations (Musgravetown Group) of eastern Newfoundland: implications for Avalonia and West Gondwana paleogeography. *Canadian Journal of Earth Sciences* v. 49, 308-327.
23. Singleton, A.C.\*, Osinski, G.R., McCausland, P.J.A., Moser, D. 2011. Shock induced changes in density and porosity in shock metamorphosed crystalline rocks, Haughton impact structure, *Meteoritics and Planetary Science* v. 46, pp 1774-1786, doi: 10.1111/j.1945-5100.2011.01290.x
24. McCausland, P.J.A., Samson, C. and McLeod, T. 2011.\* Meteorite Small Fragment Bulk Density via Visible Light 3D Laser Imaging, *Meteoritics and Planetary Science* v. 46, pp 1097-1109, doi: 10.1111/j.1945-5100.2011.01217.x
25. Brown, P.G., McCausland, P.J.A., Fries, M., Silber, E., Edwards, W.N.\*, Wong, D.K., Wiegert, P., Weryk, R.J., Fries, J. and Krzeminski, Z. 2011. The Fall of the Grimsby Meteorite - I: Fireball dynamics and orbit from radar, video and infrasound records. *Meteoritics and Planetary Science* v. 46, pp 339-363, doi: 10.1111/j.1945-5100.2010.01167.
26. McCausland, P.J.A., Hankard, F., Van der Voo, R. and Hall, C.M. 2011. Ediacaran paleogeography of Laurentia: Paleomagnetism and <sup>40</sup>Ar-<sup>39</sup>Ar geochronology of the 583 Ma Baie des Moutons syenite, Quebec. *Precambrian Research*, v. 187, pp 58-78, doi: 10.1016/j.precamres.2011.02.004.
27. Izawa, M.R.M.\*, Flemming, R.L., Banerjee, N.R. McCausland, P.J.A. 2011. Micro X-ray diffraction ( $\mu$ XRD) assessment of shock stage in enstatite chondrites, *Meteoritics and Planetary Science*, v. 46, pp 638-651, doi: 10.1111/j.1945-5100.2011.01180.x
28. Izawa, M.R.M.\*, Flemming, R.L., King, P.L., Peterson, R.C. and McCausland, P.J.A. 2010. Mineralogical and spectroscopic investigation of the Tagish Lake carbonaceous chondrite by X-ray diffraction and infrared reflectance spectroscopy, *Meteoritics and Planetary Science*, doi: 10.1111/j.1945-5100.2010.01043.
29. Izawa, M.R.M.\*, Flemming, R.L., McCausland, P.J.A., Southam, G., Moser, D.E. and Barker, I.R.\* 2010. Multi-technique investigation reveals new mineral, chemical and textural heterogeneity in the Tagish Lake C2 chondrite. *Planetary and Space Science*, v. 58, pp 1347-1364.
30. van Dronghen, K.\*, Tait, K., Clark, G. and McCausland, P.J.A. 2010. Petrographic and geochemical analysis of the Shelburne meteorite, an L5 ordinary chondrite fall. *Journal of the Royal Astronomical Society of Canada*, v. 104, pp 132-141.

31. Izawa, M.R.M.\*, King, P.L., Flemming, R.L., Peterson, R.C. and McCausland, P.J.A. 2010. Mineralogical and spectroscopic investigation of enstatite chondrites by X-ray diffraction and infrared reflectance spectroscopy, *Journal of Geophysical Research – Planets*, v. 115. doi:10.1029/2009JE003452
32. McCausland, P.J.A. and Plotkin, H. 2009. The 1904 Shelburne (Ontario) L5 chondrite fall, revisited. *Journal of the Royal Astronomical Society of Canada*, v. 103, pp 181-188.
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## ii) Book Chapters

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2. McCausland, P.J.A. 2017. Fireballs. *Observers Handbook 2017*, The Royal Astronomical Society of Canada, Ed. J.S. Edgar, pp 255-256.
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## iii) Refereed Government & Other Publications

1. McCausland, P.J.A. 2006. Fine-scale remanence carriers within granitoid rocks. *Institute for Rock Magnetism Quarterly*, v. 16 (1), pp 2,11.

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#### iv) Articles Submitted to Refereed Journals

1. Li, Y., McCausland, P.J.A. and Flemming, R.L. *in revisions*. Quantitative shock measurement of ureilite olivine. *Meteoritics and Planetary Science*.
2. Evans, D.A.D., Pesonen, L.J., Eglington, B.M., Elming, S.-Å., Gong, Z., Li, Z.-X., McCausland, P.J.A., Meert, J.G., Mertanen, S., Pisarevsky, S.A., Pivarunas, A.F., Salminen, J.M., Swanson-Hysell, N., Torsvik, T.H., Trindade, R.I.F., Veikkolainen, T., Zhang, S., *submitted*. An expanding list of reliable paleomagnetic poles for Precambrian tectonic reconstructions, in Chapter 9, Precambrian Supercontinents, Elsevier (L.J. Pesonen, Ed.).
3. Wen, B., Evans, D.A.D., Anderson, R.P. and McCausland, P.J.A. *submitted*. Late Ediacaran paleogeography of Avalonia and the Cambrian assembly of West Gondwana. *Earth and Planetary Science Letters*.
4. Brooks, K.I., McCausland, P.J.A. and Waldron, J.W.F. *submitted*. Paleomagnetic Study of the Early Carboniferous Fountain Lake Group, Cobequid Highlands, Nova Scotia, Canada. *Canadian Journal of Earth Sciences*.

#### v) Manuscripts in preparation

5. McCausland, P.J.A., Higgins, M., Pisarevsky, S., Jourdan, F. Hamilton, M., LeCheminant, A. and Murphy, J.B. *in preparation*. Laurentia in the mid-Ediacaran: Paleomagnetism and age of the St Honoré alkali intrusion and dykes, Quebec. *Precambrian Research*.
6. Waldron, J.W.F., Schofield, D.I., McCausland, P.J.A., Barr, S.M and Wu, L. *in preparation*. Terrane history of the Iapetus Ocean in the Northern Appalachians and western Caledonides: a Review. *Earth Science Reviews*.
7. Deng, M., McCausland, P.J.A., Charles, C.R.J., Umoh, J. and Holdsworth, D.W. *in preparation*. In situ chondrule shapes in the Tagish Lake C2 (ungrouped) carbonaceous chondrite assessed using X-ray computed tomography: A window on the formation of chondrules in the solar nebula. *Meteoritics and Planetary Science*.
8. Warsame, H.S, McCausland, P.J.A. and Waldron, J.S, *in preparation*. Paleogeography of Early Paleozoic Laurentia: Paleomagnetism of the Cambro-Ordovician Passive Margin of Laurentia, Port au Port Peninsula, Newfoundland. *Canadian Journal of Earth Sciences*.
9. Uribe, D.D., McCausland, P.J.A., Izawa, M.R.M., Flemming, R.L., Moser, D. and Barker, I. *in preparation*. Extensively metamorphosed anomalous enstatite achondrites Zakłodzie and NWA 4301 and insight on early solar system processes. *Planetary and Space Science*.
10. Gunawardana, H., McCausland, P.J.A. and Murphy, J.B. *in preparation*. Paleomagnetism of the McAras Brook Formation, Avalonia and implications for the Devonian paleofield. *Geophysical Journal International*.
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investigation of the anomalous enstatite achondrite NWA 8173. *Meteoritics and Planetary Science*.

#### vi) Conference and Extended Abstracts

(Presenter; *my students listed in italics*; mentored students with asterisk\*)

1. Waldron, J.W.F., Schofield, D.I., McCausland, P.J.A., Barr, S.M. and Wu, L. 2020. Towards a kinematic model for Iapetus Ocean closure. GeoConvention 2020, Calgary, AB. May, 2020. *Abstract*
2. Thallner D.\*, Biggin A., Hill M., Halls H., McCausland P.J.A., Shcherbakova V., Shcherbakov V. and Bakhmutov V. 2020. Evaluating the anomalous palaeomagnetic field behaviour in the Ediacaran with new palaeointensity data from Laurentia and Baltica. European Geosciences Union, Vienna, Austria. May, 2020. *Abstract*
3. Li, Y., McCausland, P.J.A., Flemming, R.L., Christoffersen, P. and Osinski, G.R. 2020. Investigation of a hybrid lunar feldspathic breccia Northwest Africa 11515: Mineralogy And Shock History. 51<sup>st</sup> Lunar and Planetary Science Conference, Houston, TX. March, 2020, *Abstract*
4. Flemming, R.L. and 28 others. 2020. In situ X-Ray diffraction for exploring Mars mineralogy and geology. 51<sup>st</sup> Lunar and Planetary Science Conference, Houston, TX. March, 2020, *Abstract*
5. Waldron, J.W.F., McCausland, P.J.A., Schofield, D.I. and Barr, S.M. 2020. A kinematic model for Iapetus Ocean closure. Northeastern Section Geological Society of America annual meeting, Reston, VA. March, 2020. *Abstract*
6. Warsame, H., McCausland, P.J.A., White, C.E., Barr, S.M., Dunning, G.R. and Waldron, J.W.F. 2020. Paleomagnetic evidence for Late Carboniferous (or younger) counter-clockwise rotation of Meguma terrane. GAC Newfoundland & Labrador Section Spring meeting, St. John's, NL. February, 2020. *Abstract*
7. Brooks, K.I., McCausland, P.J.A. and Waldron, J.W.F. 2020. Paleolatitude of the Devonian Fountain Lake Group Volcanics, Cobequid Highlands, Nova Scotia, as a new constraint on Laurentia paleogeography. GAC Newfoundland & Labrador Section Spring meeting, St. John's, NL. February, 2020. *Abstract*
8. Brooks, K.I., McCausland, P.J.A. and Waldron, J.W.F. 2020. Paleomagnetic Study of the Devonian Fountain Lake Group Volcanics, Cobequid Highlands, Nova Scotia. Atlantic Geoscience Society 2020 Colloquium, Truro, NS. February, 2020. *Abstract*
9. Waldron, J.W.F., McCausland, P.J.A., Schofield, D.I. and Barr, S.M. 2020. Towards a kinematic model for Iapetus Ocean closure. Atlantic Geoscience Society 2020 Colloquium, Truro, NS. February, 2020. *Abstract*
10. Gunawardana, H., McCausland, P.J.A. and Murphy, J.B. 2019. Paleomagnetism of the Devonian McAras Brook Formation, Nova Scotia. GAC Canadian Tectonics Group – GAC-NL Symposium, Deer Lake, NL. October, 2019. *Abstract*
11. Li, Y., McCausland, P.J.A. and Flemming, R.L. 2019. Comparative micro-x-ray diffraction study of shock metamorphosed olivine and pyroxene in ureilite meteorites. Geological Society of America, Phoenix, AZ. September, 2019. *Abstract*
12. Rupert, A.N., McCausland, P.J.A. and Flemming, R.L. 2019. Shock deformation classification of ordinary chondrites using in situ 2D XRD simple diffraction peak width measurement of olivine. Geological Society of America, Phoenix, AZ. September, 2019. *Abstract*
13. McCausland, P.J.A., Higgins, M., Pisarevsky, S., Jourdan, F. Hamilton, M., LeCheminant, A. and Murphy, J.B. 2019. Laurentia during the mid Ediacaran: Paleomagnetism and 580

Ma age of the Saint-Honoré alkali intrusion and dykes, Québec. GAC-MAC Annual meeting, Québec, May 2019. *Abstract*

14. Posnov, N.\*, Osinski, G.R., Flemming, R.L., McCausland, P.J.A., Pontefract, A. and Crósta, A. 2019. Classification of shocked basalt from Vargeão dome and Vista Alegre: implication for the search for life on Mars. 50<sup>th</sup> Lunar and Planetary Science Conference, Houston, TX. March, 2019, *Abstract*
15. McCausland, P.J.A., Murphy, J.B., Pisarevsky, S.A., Hall, C.M., Flemming, R.L. and O'Brien, S.J. 2019. Early Avalonian arc paleogeography: Preliminary paleomagnetism and <sup>40</sup>Ar/<sup>39</sup>Ar geochronology of Neoproterozoic units, Burin Peninsula, Newfoundland. GAC Newfoundland & Labrador Section Spring meeting, St. John's, NL. February, 2019
16. Li, Y., McCausland, P.J.A. and Flemming, R.L. 2018. Quantification of shock stages in ureilite olivine by in-situ micro-X-ray diffraction. Lunar and Planetary Science Conference XLIX, Houston, TX. March, 2018, *Abstract*
17. Jenkins, L.E., Flemming, R.L. and McCausland, P.J.A. 2018. Quantitative in situ XRD Measurement of Shock Metamorphism in Martian Meteorites: Olivine Lattice Strain and Strain-Related Mosaicity. Lunar and Planetary Science Conference XLIX, Houston, TX. March, 2018, *Abstract*
18. McCausland, P.J.A. 2017. Assembly of the Northern Cordillera: Mesozoic to present terrane motions and their evolving relationship with North America. CGU Annual Meeting, Vancouver, BC, May, 2017.
19. McCausland, P.J.A., Deng, M., Umoh, J. and Holdsworth, D.W., 2017. Reliable, non-destructive bulk volume and density determination of meteorites using medical X-ray micro computed tomography (microCT). CGU Annual Meeting, Vancouver, BC, May, 2017.
20. Warsame, H.S., McCausland, P.J.A., White, C.E., Barr, S.M. and Dunning, G.R. 2017. Age and preliminary paleomagnetic assessment of the Silurian Mavillette gabbro, Meguma terrane, Nova Scotia, Canada. GAC-MAC Annual meeting, Kingston, ON, May 2017.
21. Thomson, A.M., Tsujita, C.J., and McCausland, P.J.A. 2017. Paleoenvironmental implications of rugose coral growth ridges in the Middle Devonian Hungry Hollow Member, Michigan Basin. GAC-MAC Annual meeting, Kingston, ON, May 2017
22. Fernandes, E.A., McCausland, P.J.A., Pilles, E. Osinski, G.R. 2017. Magnetic fabric study and the emplacement of sulfide deposits in the North Range offset dykes of the Sudbury Impact Structure, Ontario, Canada. GAC-MAC Annual meeting, Kingston, ON, May 2017.
23. Gunawardana, H., McCausland, P.J.A., Good, D.J. and McBride, J. 2017. Use of Anisotropy of Magnetic Susceptibility (AMS) to analyze petrofabrics in Cu and PGE bearing gabbroic units of the Marathon deposit, Ontario. Institute on Lake Superior Geology meeting, Wawa, ON, May 2017.
24. McCausland, P.J.A., Tait, K.T., Nicklin, I. and Flemming, R.L. 2017. Regolith Processing on L Chondrite Bodies as Witnessed by NWA 869. Lunar and Planetary Science Conference XLVIII, Houston, TX. March, 2017, *Abstract # 1826*.
25. Uribe, D.D., McCausland, P.J.A., Izawa, M.R.M., Flemming, R.L., Moser, D. and Barker, I. 2017. Structural and chemical microanalysis of anomalous enstatite achondrites via electron backscatter diffraction (EBSD). Lunar and Planetary Science Conference XLVIII, Houston, TX. March, 2017, *Abstract # 2537*.
26. Li, Y., McCausland, P.J.A. and Flemming, R.L. 2017. Quantification of shock stages in ureilite olivine in NWA 2221 by in-situ micro-X-ray diffraction. Lunar and Planetary Science Conference XLVIII, Houston, TX. March, 2017, *Abstract # 2509*
27. Gunawardana, H., McCausland, P.J.A., Good, D.J. and McBride, J. 2017. Use of Anisotropy of Magnetic Susceptibility (AMS) to analyze petrofabrics in Cu and PGE bearing

- gabbroic units of the Marathon deposit, Ontario. AME Roundup, Vancouver, BC, January, 2017.
28. McCausland, P.J.A., Bramble, M.S., Brown, P.G., Umoh, J.U., and Holdsworth, D.W. 2016. Many meteorites in one: Spatial scale and range of variation in bulk physical and lithological properties of the Tagish Lake C2 chondrite. GAC-MAC Annual meeting, Whitehorse, YK. June 2016.
  29. Flemming, R.L., McCausland, P.J.A. and Nelson, A. 2016. X-ray vision: In situ X-ray CT imaging and X-ray diffraction of the Tucson iron meteorite mineralogy and textures. GAC-MAC Annual meeting, Whitehorse, YK. June 2016.
  30. McCausland, P.J.A., Flemming, R.L., Mazur, M.J., Umoh, J., Holdsworth, D.W. and Wengenroth, J. 2016. Famenin, Iran Ordinary Chondrite 2015 Fall: Non-Destructive Analysis. Lunar and Planetary Science Conference XLVII, Houston, TX. March, 2016, *Abstract # 3064*.
  31. Uribe, D.D., McCausland, P.J.A., Izawa, M.R.M. and Flemming, R.L. 2016. A comparative study of the Zaklodzie and NWA 4301 anomalous enstatite achondrites. Lunar and Planetary Science Conference XLVII, Houston, TX. March, 2016, *Abstract # 3071*.
  32. Uribe, D.D., Izawa, M.R.M., McCausland, P.J.A. and Flemming, R.L. 2016. Mineralogy, petrology, and mineral chemistry of NWA 8173: An anomalous enstatite achondrite with evidence for high-temperature silicate sulphidation. Lunar and Planetary Science Conference XLVII, Houston, TX. March, 2016, *Abstract # 2797*.
  33. Warsame, H.S., McCausland, P.J.A. and Waldron, J.W. 2016. Reassessment of Port au Port Peninsula Paleomagnetism, with New Preliminary Results. GAC Newfoundland & Labrador Section Spring meeting, St. John's, NL. February, 2016.
  34. Gunawardana, H., McCausland, P.J.A. and Murphy, J.B. 2016. Paleomagnetism of the Devonian McArras Brook Formation, Avalonia, revisited. Atlantic Geoscience Society 2016 Colloquium, Truro, NS. February, 2016.
  35. Warsame, H.S., McCausland, P.J.A. and Waldron, J.W. 2016. Preliminary paleomagnetic assessment of the Cambrian Port au Port Group, Port au Port Peninsula, Newfoundland. Atlantic Geoscience Society 2016 Colloquium, Truro, NS. February, 2016.
  36. Edey, D.R.\* Flemming, R.L., Pollmann, S.I., Lorusso, D. Drangova, D., McCausland, P.J.A. and Holdsworth, D.W. 2015. Volumetric Analysis and Phase Discrimination in Meteorites by Medical X-Ray Micro-CT. Abstract, Joint Meeting AGU-CGU-GAC-MAC Montreal, Canada May, 2015.
  37. Uribe, D.D., McCausland, P.J.A., Izawa, M.R.M., Flemming, R.L., Umoh, J. and Holdsworth, D.W. 2015. 3D petrography of Enstatite achondrites via micro computed tomography scanning ( $\mu$ CT). Abstract, Joint Meeting AGU-CGU-GAC-MAC Montreal, Canada May, 2015.
  38. Charles, C.R.J.\*, Davis, D.W., McCausland, P.J.A. and Robin, P.Y. 2015. Nebular conditions in the Early Solar System from the 3D tomography of chondrules. Abstract, Joint Meeting AGU-CGU-GAC-MAC Montreal, Canada May, 2015.
  39. Gunawardana, H., McCausland, P.J.A. and Murphy, J.B. 2015. Paleomagnetic study of the middle Devonian McArras Brook Formation, Avalonia and the paleoposition of the Laurentia-Avalon margin. Abstract, Northeastern GSA, Bretton Woods, NH, March 2015.
  40. Uribe, D.D., McCausland, P.J.A., Izawa, M.R.M., Flemming, R.L., Umoh, J. and Holdsworth, D.W. 2015. Comparative Non-destructive study of the Zaklodzie and NWA 4301 Enstatite Achondrites via Micro-Computed Tomography. Lunar and Planetary Science Conference XLVI, Houston, TX. March, 2015, *Abstract # 2871*.

41. Bramble, M.S., McCausland, P.J.A., Flemming, R.L. 2014. Micro-X-ray diffraction and scanning electron microscopy investigation of enigmatic dun-coloured veins in the Tagish Lake carbonaceous chondrite. GAC-MAC annual meeting, Fredericton, NB, May, 2014.
42. Bramble, M.S., Flemming, R.L. and McCausland, P.J.A. 2014. Grain Size, 'Spotty' XRD Rings, and CheMin: Two-Dimensional X-ray Diffraction as a Proxy for Grain Size Measurement in Planetary Materials. Lunar and Planetary Science Conference XLV, Houston, TX. March 2014.
43. Ralchenko, M.\*, Britt, D.T., Samson, C., Herd, C.D.K., Herd, R.K. and McCausland, P.J.A. 2014. Bulk Physical Properties of the Tagish Lake Meteorite Frozen Pristine Fragments. Lunar and Planetary Science Conference XLV, Houston, TX. March 2014.
44. Flemming, R.L. and McCausland, P.J.A. 2013. In situ Micro-XRD Study of the Chelyabinsk LL5 Chondrite. Meteoritical Society 76<sup>th</sup> Annual Meeting, Edmonton, AB, August 2013.
45. Fry, C.\*, Ralchenko, M.\*, McLeod, T.\*, Samson, C., McCausland, P.J.A. and Herd, R.K. 2013. Non-destructive density measurements of five iron meteorite suites. Meteoritical Society 76<sup>th</sup> Annual Meeting, Edmonton, AB, August 2013.
46. Wilson, G.C., McCausland, P.J.A. and Plotkin, H. Canadian Meteorites: A Brief History. Meteoritical Society 76<sup>th</sup> Annual Meeting, Edmonton, AB, August 2013.
47. Jin, J., Harper, D.A.T., Cocks, L.R.M., McCausland, P.J.A., Rasmussen, C.M.Ø. and Sheehan, P.M. 2013. Locating the Late Ordovician equator in Laurentia using palaeobiological and palaeomagnetic data. Abstract: GAC-MAC annual meeting, Winnipeg, MB, May, 2013.
48. Ibrahim, M.\*, McCausland, P.J.A., Brown, P.G., Umoh, J. and Holdsworth, D.W. Micro-Porosity Distribution in the Tagish Lake C2 Carbonaceous Chondrite. Abstract: GAC-MAC annual meeting, Winnipeg, MB, May, 2013.
49. Edey, D.R.\*, McCausland, P.J.A., Holdsworth, D.W. and Flemming, R.L. 2013. Extended Dynamic Range Micro-Computed Tomography of Meteorites Using a Biomedical Scanner. Lunar and Planetary Science Conference XLIV, Houston, TX. March 2013.
50. Fry, C.\*, Samson, C., Butler, S., McCausland, P.J.A. and Herd, R.K. 2013. 3D Laser Imaging of Tektites. Lunar and Planetary Science Conference XLIV, Houston, TX. March 2013.

#### **2012 and before**

51. Charles, C.R.J.\*, McCausland, P.J.A., Flemming, R.L. and Davis, D.W. 2012. Evaluating meteorites using LA-ICPMS: 'Lovina' test case. Abstract: V.M. Goldschmidt Conference, Montreal, QC, June, 2012.
52. Wilson, G.C. and McCausland, P.J.A. 2012. Canadian meteorites: a brief review. Abstract: GAC-MAC annual meeting, St. John's, NF, May, 2012.
53. Melanson, D.\*, Samson, C., Herd, R.K., Fry, C.\*, McCausland, P.J.A., Umoh, J. and Holdsworth, D.W. 2012. X-ray micro computed tomography imaging of the Buzzard Coulee chondrite. Abstract: Lunar and Planetary Science Conference XLIII, Houston, TX. March 2012.
54. Fry, C.\*, Samson, C., McCausland, P.J.A. and Herd, R.K. 2012 3D Laser imaging of iron meteorites. Abstract: Lunar and Planetary Science Conference XLIII, Houston, TX. March 2012.
55. McCausland, P.J.A. 2011. Laurentia - West Gondwana relations in the Late Neoproterozoic. Abstract: Gondwana 14, Buzios, Brazil, Sept. 2011.
56. Jakubowski, T., Ott, U., Herrmann, S. and McCausland, P.J.A. Solar noble gases in Tagish Lake. Abstract: Goldschmidt 2011 Conference, Prague, August, 2011.
57. Charles, C.R.J.\*, McCausland, P.J.A., Umoh, J., Holdsworth, D., Davis, D.W., Gregory, D., Tait, K. and Nicklin, I. 2011. Textures of single chondrules in CR2 chondrite NWA 801 by



- medical X-Ray microcomputed tomography. Abstract: Meteoritical Society 74th Annual meeting, Greenwich, UK, July, 2011.
58. McCausland, P.J.A. 2011. Paleogeographic setting for Laurentia's Late Neoproterozoic lapetan rifting. Abstract: GAC-MAC Annual meeting, Ottawa, May, 2011.
59. Fry, C.\*, McCausland, P.J.A., Herd, R.K. and Samson, C. 2011. Physical characterization of the Buzzard Coulee H4 chondrite. Abstract: CGU Annual meeting, Banff, AB, May 2011.
60. McCausland, P.J.A. 2011. Magnetic susceptibility variation in the Tagish Lake C2 chondrite. Abstract: CGU Annual meeting, Banff, AB, May 2011.
61. McCausland, P.J.A., Flemming, R.L., and Izawa, M.R.M.\* 2011. Shock stage determination from the measurement of olivine and pyroxene crystalline mosaicity by in situ micro-XRD. CGU Annual meeting, Banff, AB, May 2011.
62. Cartwright, J.A., Herzog, G.F., Herrmann, S., Shankar, N., McCausland, P.J.A. and Ott, U. 2011. The Grimsby H chondrite: Combined noble gas and radionuclide analysis. Abstract #2686, Lunar and Planetary Science Conference XLII, Houston, TX. March 2011.
63. Strait M.M., Lipman M.A. and McCausland P.J.A. 2011. Visualization of porosity. Abstract #2052, Lunar and Planetary Science Conference XLII, Houston, TX. March 2011.
64. Fry, C.\*, Samson, C., McCausland, P.J.A. and Herd, R.K. 2011. Bulk density and magnetic susceptibility of the Buzzard Coulee meteorite. Abstract #1427, Lunar and Planetary Science Conference XLII, Houston, TX. March 2011.
65. McCausland, P.J.A., Flemming, R.L. and Izawa, M.R.M.\* 2010. Quantitative shock stage assessment in olivine and pyroxene bearing meteorites via in situ micro-XRD. Abstract: AGU Fall Meeting, San Francisco CA, December, 2010.
66. Round, S., Flemming, R.L., Beausoleil, Y.\* and McCausland, P.J.A. 2010. Classification of meteorites by olivine unit cell using micro X-ray diffraction. Abstract #5230. Meteoritical Society 73rd Annual meeting, New York, July, 2010.
67. McCausland, P.J.A., Flemming, R.L. and Izawa, M.R.M.\* 2010. Shock stage measurement in ordinary chondrites and achondrites by in situ micro-XRD. Abstract #5246. Meteoritical Society 73rd Annual meeting, New York, July, 2010.
68. Cartwright, J.A., Herrmann, S., McCausland, P.J.A., Brown, P.G. and Ott, U. 2010. Noble gas analysis of the Grimsby H chondrite. Abstract #5236. Meteoritical Society 73rd Annual meeting, New York, July, 2010.
69. Izawa, M.R.M.\*, Flemming, R.L., Banerjee, N.R., McCausland, P.J.A., Moser, D.E., Barker, I.R.\*, Craig, M.E.\*, Cloutis, E.A. and Matveev, S. 2010. Multimethod study of E chondrite shock. Abstract #5345. Meteoritical Society 73rd Annual meeting, New York, July, 2010.
70. McCausland, P.J.A., Brown, P.G., Hildebrand, A.R., Flemming, R.L., Barker, I.\*, Moser, D.E., Osinski, G., Holdsworth, D.W., Renaud, J. and Edwards, W.N.\* 2010. Fall and initial examination of the Sept. 25, 2009 Grimsby H5 ordinary chondrite. GeoCanada 2010, Calgary, May 2010.
71. Brown, P.G., McCausland, P.J.A., Fries, M., Silber, E., Edwards, W.N.\*, Wong, D.K., Weryk, R.J. and Fries, J. 2010. Multi-instrumental observations of the Grimsby meteorite fall. Meteoroids, May 2010.
72. McCausland, P.J.A., Brown, P.G., Hildebrand, A.R., Flemming, R.L., Barker, I.\*, Moser, D.E., Renaud, J. and Edwards, W.N.\* 2010. Fall of the Grimsby H5 Chondrite Abstract #2716, Lunar and Planetary Science Conference XLI, Houston, TX. March 2010.
73. McCausland, P.J.A., Brown, P.G., Holdsworth, D.W. 2010. Rapid, Reliable acquisition of meteorite volumes and internal features by laboratory X-ray Micro-CT scanning. Abstract #2584, Lunar and Planetary Science Conference XLI, Houston, TX. March 2010.

74. McCausland, P.J.A. 2009. Neoproterozoic Laurentia, the elusive keystone. GSL Fermor Meeting: Rodinia –Supercontinents, Superplumes and Scotland, Edinburgh, UK, September, 2009.
75. Pisarevsky, S., Tait, J. and McCausland, P.J.A. 2009. Ediacaran Paleogeography: Paleomagnetic Constraints and Alternative Models. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
76. McCausland, P.J.A., Pisarevsky, S., Jourdan, F. and Higgins, M. 2009. Laurentia at 571 Ma: Preliminary paleomagnetism and Ar-Ar age of the Ediacaran St Honore alkali intrusion, Quebec. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
77. McCausland, P.J.A., Flemming, R.L., Wilson, G., Renaud, J. and Dillon, D. 2009. The Wood Lake, Ontario H4 ordinary chondrite, a new Canadian meteorite. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
78. McCausland, P.J.A., Smirnov, A., Evans, D.A.D., Izard, C.\* and Raub, T. 2009. Low-latitude Laurentia at 615 Ma: Paleomagnetism of the Long Range Dykes and Coeval Lighthouse Cove Formation, Northern Newfoundland and SE Labrador. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
79. Izawa, M.R.M.\*, Flemming, R.L., King, P.L., Peterson, R., McCausland, P.J.A., Barker, I.\*, Southam, G. and Moser, D. 2009. Multi-method Investigation of Several Fragments of the Tagish Lake C2 Carbonaceous Chondrite, a Co-ordinated Mineralogical, Imaging, Chemical and Spectroscopic Reconnaissance. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
80. McCausland, P.J.A., Hankard, F., Van der Voo, R., and Hall, C.M. 2009. A test of high-latitude Laurentia: paleomagnetism and  $40\text{Ar}$ - $39\text{Ar}$  geochronology of the 584 Ma Baie des Moutons syenite, Quebec. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
81. McCausland, P.J.A., Hildebrand, A. and Brown, P. 2009. The Tagish Lake C2 Carbonaceous Chondrite: Arrival Circumstances of a Unique, Primitive Messenger from the Early Solar System. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
82. Izawa, M.R.M.\*, King, P.L., Flemming, R.L., Peterson, R. and McCausland, P.J.A. 2009. Mineralogical and spectroscopic investigation of enstatite chondrites by X-ray diffraction and infrared reflectance spectroscopy. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
83. McCausland, P.J.A., Samson, C. and DesLauriers, A. 2009. Small Meteorite Fragment Bulk Density via Visible Light 3-D Laser Imaging. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
84. Flemming, R.L., McCausland, P.J.A., Kissin, S., Corcoran, P., Biesinger, M., McIntyre, N., Fuller, M. and Feng, R. 2009. The unusual Lovina Apatite: Examination of Meteoritic Microstructures and Terrestrial Weathering by micro-XRD, Petrography, SEM, INAA and sXRF. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
85. van Dronghelen, K.\*, Tait, K., Clark, G. and McCausland, P.J.A. 2009. The Known and the Unknown: Petrographic and Geochemical Analysis of the Shelburne Meteorite and an Unknown L6 Ordinary Chondrite. Toronto AGU-GAC-MAC-CGU Joint Assembly, May 2009.
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89. Symons, D.T.A., Kawasaki, K.\* and McCausland, P.J.A. 2008. Yukon-Tanana Terrane -- Autochthonous, Rotated and/or Translated?: Paleomagnetism of the Late Triassic Taylor Mountain Batholith, Alaska. AGU Joint Assembly, Ft. Lauderdale, FL May, 2008.
90. Pisarevsky, S.A., McCausland, P.J.A., Hodych, J.P., Tait, J.A. 2008. Palaeomagnetism of the Late Neoproterozoic Bull Arm and Crown Hill Formations, Newfoundland: preliminary data and tectonic applications Abstract, GAC-MAC Annual meeting 2008, Quebec, QC. May, 2008.
91. McCausland, P.J.A. 2008. Rodinia's offspring? Laurentia tectonics and paleogeography during the Precambrian-Cambrian transition Abstract, Canadian Geophysical Union Annual meeting, Banff, AB. May, 2008.
92. Flemming, R.L., McCausland, P.J.A., Kissin, S.A., Corcoran, P., and Biesinger, M. 2008. Lovina, a new ataxite: Examination by  $\mu$ XRD, petrography, SEM and INAA. Abstract, Lunar and Planetary Science Conference XXXIX, Houston, TX. March 2008.
93. Izawa, M.R.M.\*, Wright, A.J., McCausland, P.J.A., Flemming, R.L., Muirhead, D.K., Parnell, J. 2008. Combined in situ Micro X-Ray Diffraction and Raman Study of Carbonaceous Matter in Ureilites and Terrestrial Materials. Abstract #1459, Lunar and Planetary Science Conference XXXIX, Houston, TX. March 2008.
94. McCausland, P.J.A., Murphy, J.B., Hamilton, M.A., Pisarevsky, S.A. and O'Brien, S.J. 2008. Avalonia's foundation? Preliminary paleomagnetism and U-Pb zircon geochronology of the mid-Neoproterozoic Burin Group, Newfoundland Abstract, NE GSA meeting, Buffalo, NY, GSA Abstracts with Programs Vol. 40, No. 2
95. Murphy, J.B., McCausland, P.J.A., O'Brien, S.J., Pisarevsky, S.A. and Hamilton, M.A. 2008. Geochemistry and Sm-Nd isotopic signature of the 0.76 Ga Burin Group: A compositional equivalent of the basement for Late Neoproterozoic Avalonian magmatism? Abstract, NE GSA meeting, Buffalo, NY, GSA Abstracts with Programs Vol. 40, No. 2
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97. Plotkin, H. and McCausland, P.J.A. 2007. The L5 Shelburne meteorite revisited Abstract, Planetary Science Research Symposium 2007, London, ON. Nov. 2007
98. Izawa, M.R.M.\*, Flemming, R.L. and McCausland, P.J.A. 2007. Investigation of matrix mineralogy in the Tagish Lake and Gao Guenie B carbonaceous chondrites by micro X-ray diffraction Abstract, Planetary Science Research Symposium 2007, London, ON. Nov. 2007
99. Brown, P.G., Sukara, E.A.\*, Eaton, D.W., Edwards, W.N.\*, ReVelle, D.O. and McCausland, P.J.A. 2007. The Desaguadero, Peru meteorite crater Abstract, Planetary Science Research Symposium 2007, London, ON. Nov. 2007
100. Kissin, S.A., Flemming, R.L., Corcoran, P., McCausland, P.J.A., and Biesinger, M. 2007. "Lovina," a new ataxite from Bali, Indonesia Abstract, Planetary Science Research Symposium 2007, London, ON. Nov. 2007
101. McCausland, P.J.A. Samson, C. and DesLauriers, A. 2007. Bulk densities of meteorites via visible light 3D laser imaging. Meteoritical Society 70th Annual meeting, Tucson, AZ. Aug 2007

102. Edwards, W.N.\*, Eaton, D.W., McCausland, P.J.A., ReVelle, D.O. and Brown, P.G. 2007. Observations of infrasonic-seismic coupling for an artificial meteor-analog: STARDUST sample return capsule re-entry Abstract, Meteoroids 2007, Barcelona, Spain. July 2007
103. McCausland, P.J.A. 2007. Low-latitude Laurentia during early Ediacaran time: Preliminary paleomagnetic results from the 615 Ma Lighthouse Cove volcanics, Newfoundland Abstract, CGU-CMOS-AMS joint meeting 2007, St. John's, NFLD. June 2007
104. McCausland, P.J.A., Gower, C., Hodych, J.P., Patzold, R. and Tubrett, M. 2007. End of the Grenville: A new Laurentian paleopole from the 974 Ma Gilbert Bay dykes, southeastern Labrador Abstract, GAC/MAC Annual meeting 2007, Yellowknife NWT. May 2007
105. McCausland, P.J.A. and Flemming, R.L. 2007. Mission to planet "meteorite:" Reconnaissance sampling of the Solar System without a spacecraft Abstract, GAC/MAC Annual meeting 2007, Yellowknife NWT. May 2007
106. Flemming, R.L., McCausland, P.J.A., Izawa, M.\* and Jacques, N.\* 2007. Reconnaissance micro-XRD studies of meteorites: Rapid in situ mineral identification and textural information Abstract #2363, Lunar and Planetary Science Conference XXXVIII, Houston, TX. March 2007.
107. Izawa, M.R.M.\*, Flemming, R.L. and McCausland, P.J.A. 2007. Investigation of the Tagish Lake carbonaceous chondrite by X-ray microdiffraction Abstract #1923, Lunar and Planetary Science Conference XXXVIII, Houston, TX. March 2007.
108. McCausland, P.J.A. 2007. Where was the Iapetus Ocean born? Tectonics and paleogeography of the Precambrian-Cambrian transition Abstract, GAC Newfoundland Section meeting, St. John's, NFLD, February 2007.
109. McCausland, P.J.A. 2006. Where was the Iapetus Ocean born? Abstract, Northeastern Section, Geological Society of America, 41st Annual Meeting, Harrisburg, PA. March 2006.
110. McCausland, P.J.A., and Flemming, R.L. 2006. Preliminary bulk and grain density measurements of Martian, HED and other achondrite meteorites. Abstract #1574, Lunar and Planetary Science Conference XXXVII, Houston, TX. March 2006.
111. McCausland, P.J.A., Bazhenov, M.L., Van der Voo, R., Degtyarev, K.E., and Levashova, N.M. 2005. Paleozoic assembly of Eurasia ...with a twist: Carboniferous paleomagnetism of Zhemanty, Kandyktas block, Kazakhstan. AGU Fall meeting, San Francisco, CA. December 2005.
112. Abrajevitch, A., McCausland, P.J.A., Van der Voo, R., Bazhenov, M.L., Degtyarev, K.E., and Levashova, N.M. 2005. A Cautionary Tale About Vertical-Axis Rotations, or How to Recognize an Orocline When You See One? . AGU Fall meeting, San Francisco, CA. December 2005.
113. McCausland, P.J.A., and Van der Voo, R. 2004. Rapid, coherent Apparent Polar Wander in the terminal Neoproterozoic –Early Cambrian? Abstract, AGU Fall meeting.
114. McCausland, P.J.A., Van der Voo, R., and Hall, C.M. 2004. Paleomagnetic confirmation of a low-latitude Laurentia by 534 Ma. Abstract, AGU-CGU Joint meeting, Montreal, QC.
115. McCausland, P.J.A., and Symons, D.T.A. 2003. Paleomagnetic constraints from six intrusions on the Mesozoic and Cenozoic geotectonic motions of the Yukon-Tanana Terrane: Key to the assembly of the northern Cordillera. Abstract, GAC/MAC 2003, Vancouver, B.C.
116. Symons, D.T.A., Erdmer, P., and McCausland, P.J.A. 2003. New 42 Ma cratonic North American paleomagnetic pole: Another Cordilleran Paleomagnetism-geology conundrum!. Abstract, GAC/MAC Annual meeting 2003, Vancouver, B.C.

117. McCausland, P.J.A., Van der Voo, R., and Brandenburg, J.P.\* 2003. Preliminary paleomagnetic results from Late Neoproterozoic intrusions in Quebec, Canada: Rapid apparent latitudinal motion of Laurentia. Abstract, EGU-AGU-EUG Joint meeting, Nice, France.
118. McCausland, P.J.A., Symons, D.T.A., and Harris, M.J. 2003. Paleomagnetic constraints on Mesozoic and Cenozoic terrane motions during the assembly of the northern Cordillera, Canada: A synthesis including new results from the pericratonic Yukon-Tanana terrane. Abstract, EGU-AGU-EUG Joint meeting, Nice, France.
119. McCausland, P.J.A., Symons, D.T.A., Hart, C.J.R., and Blackburn, W.H. 2001. Preliminary paleomagnetism and geothermobarometry of the Granite Mountain batholith: Minimal geotectonic motion of the Yukon-Tanana terrane relative to North America. Extended abstract, LITHOPROBE SNorCLE workshop, Victoria, BC.
120. McCausland, P.J.A., Harris, M.J., Symons, D.T.A., and Blackburn, W.H. 2001. A test for uplift remanence in granitoids using the Al-in-hornblende geothermobarometer. Abstract, European Geophysical Society XXVI General Assembly, Nice, France.
121. McCausland, P.J.A., Symons, D.T.A., Hart, C.J.R., and Blackburn, W.H. 2001. Preliminary paleomagnetism and geothermobarometry of the Granite Mountain batholith, Yukon: Uplift remanence implies minimal geotectonic motion for the Yukon-Tanana terrane. Abstract, GAC/MAC Annual meeting 2001, St. John's, Nfld.
122. McCausland, P.J.A., Symons, D.T.A., Hart, C.J.R., and Blackburn, W.H. 2000. Minimal geotectonic motion of the Yukon-Tanana Terrane relative to North America: Preliminary paleomagnetic results from two Late Cretaceous intrusions. Abstract # 756, Geocanada 2000, Calgary.
123. Cawood, P.A., McCausland, P.J.A., and Dunning, G.R. 1999. Rift-related magmatism associated with Rodinian breakup and opening Iapetus in the northeastern Appalachians. Abstract, European Union of Geosciences annual meeting, Strasbourg, France, March 1999.
124. McCausland, P.J.A., and Hodych, J.P. 1998. Rapid northward movement of Laurentia in the latest Neoproterozoic? Paleomagnetism of the Skinner Cove Formation of western Newfoundland. Abstract, GSA Annual meeting, Toronto, p A-111.
125. McCausland, P.J.A., Hodych, J.P., and Dunning, G.R. 1997. Evidence from western Newfoundland for the final breakup of Rodinia? U-Pb age and paleolatitude of the Skinner Cove volcanics. Abstract, GAC/MAC Annual meeting, Ottawa, v.22, p A-99.
126. McCausland, P.J.A., Hodych, J.P., and Dunning, G.R. 1996. Paleomagnetism and U-Pb age of the Skinner Cove volcanics of western Newfoundland: Implications for the late Neoproterozoic breakup of Rodinia. Abstract, Proterozoic Evolution in the North Atlantic Realm (IGCP 371) conference proceedings, p. 122.

**Reviewer for:**

- Geological Society of America Bulletin
- Precambrian Research
- Geophysical Journal International
- Meteoritics and Planetary Science
- Geology
- Gondwana Research
- Economic Geology
- American Journal of Science
- Lithos
- Tectonics
- Geoscience Canada

- Journal of Geochemical Exploration
- Canadian Aeronautics and Space Journal
- Journal of Volcanology and Geothermal Research
- Geological Association of Canada
- National Science Foundation

### **Professional Affiliations**

- Canadian Geophysical Union (Past President, Solid Earth Section)
- Geological Association of Canada (Secretary-Treasurer, Geophysics Division)
- American Geophysical Union (Geomagnetism and Paleomagnetism)
- Atlantic Geoscience Society
- Geological Society of America
- Mineralogical Association of Canada
- Royal Astronomical Society of Canada
- London Gem & Mineral Society
- Institute for Earth & Space Exploration (Western)
- Centre for Advanced Materials and Biomaterials Research (Western)

### **vii) Invited Presentations and Colloquia**

February 28, 2020 [*Invited*] “Tagish Lake meteorite fall and investigation: A unique messenger from the early solar system” Research Forum, Institute for Earth & Space Exploration, Western University, London, ON.

February 5, 2020 [*Invited*] “Tagish Lake meteorite fall and investigation: A unique messenger from the early solar system” St. Francis Xavier University, Earth Sciences colloquium, Antigonish, NS.

January 31, 2020 [*Invited*] “Tagish Lake meteorite fall and investigation: A unique messenger from the early solar system” University of Toronto, Scarborough, Centre for Planetary Sciences, Scarborough, ON.

April 2, 2017 [*Keynote*] “X-ray Micro CT Imaging of Meteorites: A New Frontier in Non-Destructive 3D Sample Analysis” Advances in Earth Sciences Research Conference 2017, London, ON.

April 2, 2016 [*Keynote*] “Paleomagnetism: A Key Tool for Understanding Supercontinents and Geodynamics” Advances in Earth Sciences Research Conference, Ottawa, ON.

March 11, 2016: [*Invited*] “Precambrian Laurentia – Baltica Relations Through Two Supercontinents and Dispersal” University of Helsinki, Finland.

Jan 15, 2016: [*Invited*] “Elusive Keystone Laurentia - ancestral North America's journey through two supercontinents before Pangea” University of Windsor, Gravenor Lecture.

Nov 26, 2015: [*Invited*] “Elusive Keystone Laurentia - ancestral North America's journey through two supercontinents before Pangea” University of Toronto, Scarborough Earth Sciences colloquium, Scarborough, ON.

August 27, 2015: “Not a simple game: Results in a new era.” University of Michigan; Rob Van der Voo 75<sup>th</sup> Birthday & Retirement Symposium.

March 12, 2013: [*Invited*] UWO Senior Alumni speaker series: “Topsy-turvy: Reversal of the Earth's geomagnetic poles” talk to about 270 alumni at McKellar Hall, UWO + Q&A session

Nov 2, 2012: Colloquium presentation with Dr. J. Jin: “Precisely locating the Ordovician equator in Laurentia using fossil and paleomagnetic data.” Department of Earth Sciences, Western University

Oct 26, 2012: "Canadian meteorites: A brief review." Centre for Planetary Science & Exploration Research Forum, Western University

July 30, 2012: [*Invited*] "Magnetism in rocks records the motion of continents and the birth of ancient oceans: an example from the dawn of animal life" W.F. James Chair Lecture, St. Francis Xavier University

Feb 1, 2012: [*Invited*] "Meteorites as Essential Planetary Materials" Western University

March 1, 2011: [*Invited*] "Paleogeodynamics of the Precambrian-Cambrian transition" Department of Geology, University of Toronto

Oct 1, 2010: Colloquium presentation, "Orbit and Fall of the Grimsby meteorite; Arrival of an (extra) ordinary chondrite!" Department of Earth Sciences, Western University

### PROFESSIONAL DEVELOPMENT

- Participant, "Cosmogenic Nuclide Dating" -Dr J. Gosse (*Dalhousie University*), Feb 26, 2014
- X-ray Safety training (*Western University*), 2005; 2009; 2012; 2016
- WHMIS (Workplace Hazardous Materials Information System) 2005; 2012; 2015. 2019
- Wilderness Medical Safety - First Responder training, Sirius August 2013

### SERVICE

#### i) Departmental

Curator, Western meteorite collection July 2007 – June 2015

Leader, "Georgian Bay Field Trip" along with G. Pratt and P. Corcoran September, 2014

Three days with 28 intro geology students in circum-Georgian Bay field excursion.

Chair for Thesis defences and Comprehensive Qualifying Exams for:

Gi, Caroline; MSc defence (July 2017)

Sweeney, Sarah; MSc defence (Nov 2014)

Clark, David; Ph.D comprehensive exam (July 2014)

#### *Western Earth Sciences Departmental Committees:*

Colloquium Committee (Chair, 2013 – 2015) September 2012 – June 2015

Appointments Committee (Elected) July 2013 – June 2015

Search Committee for Hazards & Earthquake Seismology position 2014 – 2015

#### ii) University

Founding Member, Executive Council, Centre for Planetary Science and Exploration

March 2013 – August 2015

Co-leader, *Sultanate of Oman* meteorite field search with students and PDFs, February, 2013

Coordinator, UWO Planetary Sciences Research Group 2007 – 2008

Administrative activities for the UWO Graduate and Undergraduate Planetary Science Programs, public outreach, conference organization. Curator, UWO meteorite collection.

#### iii) Research Community Past Scholarly and Professional Service

##### Scientific Administration & Advocacy

- President, Solid Earth Section of the Canadian Geophysical Union 2013 – 2017
- Central Rep, Planetary Division of the Geological Association of Canada 2012 – 2015
- Junior Representative for Canada to IAGA (International Association of Geomagnetism and Aeronomy) 2010 – 2015
- President, Geophysics Division of the Geological Association of Canada 2006 – 2013
- Secretary, Solid Earth Section of the Canadian Geophysical Union 2009 – 2013
- Coordinator of awards judging for CGU and GAC annual meetings 2016 – 2018

##### Facilitating Scientific Communication

- Co-convenor of session for the CGU Banff meeting (May, 2020) with Claire Currie (*U Alberta*), Ian Ferguson (*U Manitoba*) and Katherine Boggs (*Mount Royal*) entitled: “Lithospheric Evolution of the Northern Cordillera and Environs” [*meeting cancelled*]
- Convenor of session for the GeoConvention 2020, Calgary (May, 2020) entitled: “Mineralogy and Crystallography” [*meeting cancelled*]
- Co-convenor of session for the AGS Annual Colloquium, Truro (February, 2020) with Donnelly Archibald and James Braid (*St.Fx*) entitled: “Structure, Tectonics, and Magmatism of the Appalachian-Caledonides from Iapetus to Pangea”
- Co-convenor of session for the GSA Phoenix Annual meeting (September, 2019) with Roberta Flemming (*UWO*) entitled: “T31. Deformation at Multiple Scales: From Atoms to Minerals to Rocks to Planets”
- Co-convenor of session for the GAC-MAC-CIM Vancouver meeting (June, 2018) with Ian Ferguson (*U Manitoba*) entitled: “Geophysical Constraints on Lithospheric Structures and Processes”
- Co-convenor of session for the CGU Niagara Falls meeting (June, 2018) with Claire Currie (*U Alberta*) and Fiona Darbyshire (*UQAM*) entitled: “Solid Earth Geophysics: All for one and one for all!”
- Guest Editor, *Canadian Journal of Earth Sciences* January 2013 special issue, “Planetary Geology and Geophysics: Canadian Contributions” (with Marie-Claude Williamson, Paul Sylvester, Steve Grasby, and Richard Léveillé)
- Participant in Nordic Paleomagnetic Workshop (Haraldvangen, Norway, 2014)
- Organizer of the CSA-ASTRO short course (London, Ontario, May 2013) with R. Flemming (*UWO*), a three-day meeting for astromaterials research and training for 60 participants.
- Convenor of a session for the Winnipeg GAC-MAC meeting (May, 2013) entitled: “Paleogeodynamics of the Earth Before Pangea.”
- Co-convenor of session for the CGU meeting (May, 2011) with Claire Samson (*Carleton*) entitled: “Meteorites and planetary materials.”
- Participant in Nordic Paleomagnetic Workshop (Luleå, Sweden, 2009)
- Co-convenor of four sessions at the Toronto Joint AGU-GAC-MAC-CGU meeting (May, 2009): two in tectonophysics and two in planetary science.
- Convenor of a session for the CGU meeting (Banff, May 2008) with P. Audet (*UBC*) entitled: “Solid Earth Geophysics Review.”
- Organizer of the Planetary Science Research Symposium (London, Ontario, Nov 2007) with P. Brown (*UWO*), a one-day meeting of Planetary Scientists from across Canada.
- Convenor of a session for the CGU-CMOS-AMS Joint meeting (St. John’s, May 2007) with J. P. Hodych (*Memorial U*): “Paleomagnetism, rock magnetism and geomagnetism.”
- Guest Editor, *Precambrian Research* July 2006 special issue “Endings and Beginnings: Paleogeography of the Precambrian-Cambrian transition” (with B. Murphy and C. MacNiocaill)
- Convenor of a session for the AGU-CGU Joint meeting (Montreal, 2004) with B. Murphy (*St. FX*) and Conall MacNiocaill (*Oxford*) called: “Endings and beginnings: Paleogeography, life and climate of the terminal Neoproterozoic through Cambrian time.” Also at same meeting co-chair of the AGU Union session: “Extreme environments of the Precambrian Earth.”

### **Community mentorship**

- Judge for Student best presentation awards for the GAC Geophysics Division at the GAC-MAC annual meetings since 2004
- Judge for Student best presentation awards for CGU Solid Earth Section since 2010
- Judge for various student best presentation and paper awards at the Atlantic Universities Geological Conference (AUGC-undergraduate) in 2005 and 2006.



**Other contributions**

- Participant, IGCP 628 “The Gondwana Map Project– the geological map and the tectonic evolution of Gondwana” (2015-2018)
- “Phil McCausland and the Grimsby meteorite” Human Focus chapter contribution (p. 402) to the Canadian-version textbook: “Natural Disasters” (2<sup>nd</sup> edition; McGraw-Hill Ryerson) by Abbot and Samson (2012).
- Tagish Lake meteorite “sidebar” chapter contribution to the Canadian-version textbook: “Earth, An Introduction to Physical Geology,” by Tarbuck, Lutgens and Tsujita (2004).
- Submission of several new meteorite descriptions to the Meteoritical Society for official recognition, including Grimsby (H5), Wood Lake (H4), Lovina (ataxite), NWA 2221 (ureilite), NWA 2202 (polymict eucrite), NWA 1685 (LL4 polymict breccia).

**iv) Outreach activities 2008-present**

- February 19, 2020, “Tagish Lake meteorite fall and investigation: A unique messenger from the early solar system” at Royal Astronomical Society of Canada, St. John’s Centre.
- February 13, 2020, “Tagish Lake meteorite fall and investigation: A unique messenger from the early solar system” at Lunch & Learn, Earth Sciences, Memorial University.
- August 22, 2019, [*Invited*] “Red Planet Up Close! The Delivery, Discovery and Investigation of Martian Meteorites” Starfest, Mount Forest, ON.
- October 2, 2018, “Laurentia - ancestral North America’s plate tectonic journey through a billion years” at Kawartha and Region Earth Scientists, Engineers, and Metallurgists (KREEM) Network monthly meeting.
- August 21, 2017, University of Western Ontario “2017 solar partial eclipse public event.”
- April 14, 2017, Oxford County Geological Society “From sponge to iron - meteorite density and what it means for understanding our solar system”
- November 20, 2016, “Rocks that fall to Earth” at London Gem & Mineral Show, for 15 people.
- November 9, 2016, “Mission Meteorite” presentation and outreach event for 60 grade 6 students, visiting UWO.
- February 17, 2016, “Recent fireball events in Canada” talk at Royal Astronomical Society of Canada, St. John’s Centre.
- February 3, 2016, “Meteorites -from fireballs to falls & finds!” talk at Gem and Mineral Club of Scarborough. <http://www.scarbgemclub.ca/2016/01/our-february-meeting-fireball-events-and-meteors/>
- September 19, 2015, presentation in International Observe the Moon night activities, Cronyn Observatory, Western University.
- February 5, 2015, “Landing on a Comet & Other Explorations” talk at London Gem & Mineral Society, for 42 people.
- November 21, 2014, Panel Discussion “Would you go to Mars on a one-way mission to explore and to start a human colony?” at Royal Astronomical Society of Canada, London Centre. Panelists were Phil McCausland, Melissa Battler, Dale Armstrong and Phil Stooke.
- November 16, 2014, “ESA Rosetta & Philae update + Meteorites: Falls and finds!” talk at London Gem & Mineral Show, for 35 people.
- Nov 15-16, 2014, London Gem & Mineral Show: Co-organizer (with R. Flemming) of Western display booth.
- October 6, 2014, “The magnetic record in rocks, plate tectonics and reversal of the Earth’s geomagnetic poles” London Gem & Mineral Society, presentation to 42 people.
- April, 2014, SPARK! Conference (Earth Sciences program) for gifted secondary students.

- March 21, 2014, St. Thomas fireball & meteorite fall media briefing: National media news coverage of St. Thomas fireball event and possible meteorite fall. Panelists were Phil McCausland, Peter Brown and Bill Cooke (NASA-GSFC).
- Nov 16-17, 2013, London Gem & Mineral Show: Co-organizer (with R. Flemming) of Western display booth.
- October 30, 2013, Western University, Centre for Planetary Science and Exploration outreach event to Grades 5-6: "Mission to Meteorite" Event organized by N. Banerjee for 50 students from University Heights.
- October 18, 2013, St. Paul's Junior High, St. John's, NFLD: "Meteorites: Falls and finds!" Guest class for 27 Grade 7 Science students.
- October 16, 2013, Royal Astronomical Society of Canada, St. John's Centre: "Stalking the wild meteorite of Oman: 2013"
- October 11, 2013, Oxford County Geological Society: "Reversals of the Earth's geomagnetic field: Fantastic discovery and an enduring problem"
- May 3, 2013, Kitchener-Waterloo Gem & Mineral Club: "Meteorites as Essential Planetary Materials"
- Feb 6, 2013, Watford Cubs (invitation from Mellissa Joris): "Meteorites and the starry sky!" Group of 25 children 5 to 9 years old.
- Nov 17, 2012, London Gem & Mineral Show: "Canadian Meteorites: A brief review" –two talks on Saturday and Sunday
- Sept 22, 2012, International Observe the Moon Night (InOMN), Cronyn Observatory, UWO: "Observing the moon up close: Meteorites and lunar samples!" talk to over 40 people at sundown before lunar observing.
- August 3, 2012, Invited talks at Gemboree! Bancroft Gem and Mineral show: "Meteorites as Essential Planetary Materials" Friday & Saturday talks to 50+ people each time.
- March 16, 2012, Brantford Lapidary & Mineral Society: "Meteorites as Essential Planetary Materials"
- Nov 15, 2011, The Science Café series panel discussion of "Living in Space: Reaching the Final Frontier," on Wednesday at Canada South Science City, Windsor, ON.
- March 3, 2011, London Gem & Mineral Society: Fall and recovery of the remarkable Tagish Lake meteorite.
- Oct 2-3, 2010: Ancaster Gem & Mineral show, two presentations "Grimsby meteorite fall" to 40+ people each time
- May 20, 2010: Rainbow's End Metal Detecting Association, Hamilton, ON "Finding meteorites like Grimsby" meeting of 35 members.
- National Geographic Channel special "Alien Fireballs" on the Grimsby meteorite fall: <http://channel.nationalgeographic.com/series/naked-science/5126/Overview>
- Grimsby meteorite fall public talks: Grimsby Museum: "Fall of the Sept 25, 2009 Grimsby meteorite." January 10, 2010; Royal Astronomical Society of Canada –Niagara Centre, March, 2010; Ancaster Gem & Mineral Show, October 2-3, 2010; London Gem and Mineral Show: November 25, 2010.
- Various media interviews regarding the Grimsby fireball and meteorite fall event; October 2009 through November, 2010.
- December 15, 2008, Royal Astronomical Society of Canada –St. John's: "This fall's Guelph fireball and Buzzard Coulee meteorite events –field notes."
- October 30, 2008, Centre Wellington District High School, Fergus, Ontario: Class presentation on "Guelph Fireball and meteorites"; Scott Grigsby-Lehmann, Earth and Space Science Teacher grades 12 and 9; Also, various media interviews (CTV, CBC, Newspapers,

Discovery Channel) on the Guelph fireball event of October 15, 2008, for which I was the lead investigator.

May 10, 2008, Ontario Science Centre: "The Tagish Lake Meteorite: A unique, primitive messenger from the Early Solar System."

March 2008, Departmental tour and meteorite demonstration, Nexus UWO High School tour event, "Mission to Planet Meteorite: Exploring the solar system without a spacecraft."

February 15, 2008, Royal Astronomical Society of Canada –St. John's: "Terrestrial impact craters: Recent discoveries and some surprises!"

**Achievements as a student*****Teaching Assistantships***

Earth Sciences, University of Western Ontario

- 2nd yr field camp [mapping; Precambrian geology] G. Young, D. Lescinsky (2001)
- 3rd yr field camp [Sudbury geophysics, mapping] D. Eaton, W. Church, N. Duke (2000)
- Tectonic settings (2nd year): W. Church (1999-2001)
- Introductory geology for Engineers (1st-2nd year): R. Schincariol (1998-2000)

Earth Sciences, Memorial University of Newfoundland

- Structural Geology (2nd year): T. Calon (1997)
- Paleontology (3rd year): S.H. Williams, E. Burden (1996)
- Introductory geology (1st year): J. Hodych, G. Dunning (1995-1996)

***Academic Scholarships & Awards***

Ontario Graduate Scholarship (2001-2002)

Robert and Ruth Lumsden Graduate Award, University of Western Ontario (2001)

Ontario Government Scholarships for Science and Technology (1999-2000; 2000-2001)

Fellow of the School of Graduate Studies, Memorial University of Newfoundland (1997)

Best B.Sc. (Hon) thesis -Assoc. Prof. Engineers and Geoscientists of Newfoundland (1995)

H.R. Peters Award (Best honours thesis), Earth Sciences, Memorial University (1995)

***Work experience******University of Western Ontario***

Tagish Lake meteorite field party: Fieldwork in northwestern British Columbia to document and collect carbonaceous chondrite meteoritic material -concerning fireball interviews, field logistics, meteorite search & recovery, and field documentation (April 2000- May 2000).

***University of Windsor***

Research assistant: Paleomagnetic laboratory and field collection of samples in Wisconsin and Manitoba (David T.A. Symons, 1998-2000).

***Geological Survey Branch, Newfoundland Department of Mines and Energy***

Junior Field Assistant: Labrador -Hunt River Archean greenstone belt 1:50 000 mapping project (Project Geologist: Don James; summer 1996).

***Memorial University of Newfoundland***

Contract: Lab-based rock-magnetic work for Archean Resources (G. Murthy, 1996).

Research assistant: Paleomagnetic laboratory and field collection of samples in eastern Newfoundland (J.P. Hodych, 1994-1995).

Council of the Student Union: Layout and advertising design for student newspaper, *the muse*, and other publications (1994).

*Afterwords Bookstore*: Clerk and book buyer (A.J. McCausland, 1987-1994).