

EMMANUELLE ARNAUD

School of Environmental Sciences
University of Guelph
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Personal information

Education

Ph.D. in Geology, McMaster University	1997-2002
M.Sc. in Physical Geography, University of British Columbia	1995-1997
B. A. (Combined Honours) in Geography and History, McMaster University	1991-1995

Relevant Work Experience

Associate Professor	2011-present ^a
Assistant Dean (Graduate Programs, OAC)	January 2021-December 2025
Graduate Program Coordinator, SES	May 2018-Dec 2020
Associate Director, SES	2018-2019
Associate Director, SES	2015-2017
Adjunct Professor, McMaster University	2010-2017
Assistant Professor with tenure	2005-2011
Assistant Professor	2002-2005

Awards, Recognition and Scholarships

G. P. McRostie Award	2010
In recognition of effective advising & mentoring of students at Guelph and for having demonstrated a genuine personal interest in the emotional well-being & success of students.	
Named 'Popular Prof' by UoG students in the Macleans's guide to Canadian Universities	2005
Ontario Graduate Scholarship, Science and Technology	1999-2001
NSERC Postgraduate Scholarship (A and B; 2 years each)	1995, 1997
NSERC Undergraduate Student Research Award	1995
The William and Lida Barns Memorial Prize in History	1995
The Lloyd Reeds Prizes in Geography (A and D)	1995
Canadian Association of Geographers Undergraduate Student Award	1995
The South Ontario Economic Development Council Scholarship	1994
The Rosart Properties Inc. Scholarship	1994
McMaster University Senate and Chancellor's Scholarship	1991-1993
Bull. H.N. Information Systems Scholarship	1991

Professional memberships

Graduate & Postdoctoral Development Network (Canadian Association of Graduate Studies)
Geological Society of America
Geological Association of Canada
International Association of Sedimentologists

^a research leaves (2010-2011; 2017-2018); parental leave (2008-2009); Worked on reduced workload (2009-2010) and part-time from Sept 2013-Sept 2015.

Service Contributions

Service Summary: Continuous and consistent leadership roles focused on improving the undergraduate (2002-2012) and graduate (2013-present) student experience, ensuring their postgraduate success through intentional and societally relevant academic programming, process and communication improvements and support of students' professional development, wellness and belonging.

Highlighted contributions

Assistant Dean (Graduate Programs, OAC) (2021-2026): Advised and supported academic units in OAC to develop their graduate curriculum, resulting in new (4) or revamped (3) course-based masters options. Developed and implemented a new cross-college course-based Master of Sustainable Agriculture as well as an internship course accessible to the whole college.

Outcomes: Significant improvements and enhancement of courses and program options available to graduate students across OAC, enhancing their overall academic experience and career readiness. Significant graduate enrolment increases for the university, college, Ridgetown Campus and OAC academic units.

Associate Director, School of Environmental Sciences (2015-2017): Led special projects in support of the school's academic operation namely revamping and clarifying the school's website, leading faculty retreats that resulted in curricular changes at the undergraduate and graduate level, and co-authoring of the school's IQAP self-study. **Outcomes:** Improved communication with current and prospective students; improved progression of undergraduate Earth Science courses and an improved and updated graduate curriculum that serves newly crafted learning outcomes, meets the needs of students and reflects current research expertise.

Graduate Program Coordinator: Oversaw student admissions and progress in thesis (MSc & PhD) and the course-based Master of Environmental Sciences (2013-2015, 2018-2020) and the Master of Sustainable Agriculture (2024-2025), while i) leading strategic projects related to curriculum changes that reflected evolving research expertise, ii) embedding of professional development into both thesis and course-based programs, iii) implementing procedural and communication improvements. **Outcomes:** Special initiatives improved the student experience through clarifying and simplifying processes, improving post-graduation job search readiness, whereas oversight of admissions and progress led to enrolment growth, successful negotiated outcomes in student-supervisor conflict situations and supports for students facing adversity.

Individual Development Plan Pilot (2018-2021): co-designed and implemented the adoption of Individual Development Plans (IDPs) in several graduate programs across campus in collaboration with the Office of Graduate and Postdoctoral Studies. IDPs enable students to reflect on their career goals and align their curricular and extra-curricular activities to develop the skills and knowledge required to attain those career goals. Subsequently co-led a Scholarship of Teaching and Learning research study based on graduate student perceptions of the IDP. **Outcomes:** The IDP is now available campus-wide through Grad Pathways and continues to be used in several course-based, CREATE and thesis-based programs. Our work

was presented at several meetings of the Canadian Association of Graduate Studies and the Graduate Postdoctoral and Graduate Development Network. The research was published in the Canadian Journal of Higher Education.

Canadian Career Symposium for Graduate Students and Postdoctoral Scholars (2021-2025): presented, moderated panels and have been a member of the organizing committee (2022-2025) for this annual career symposium (three half-days) that brings together professional development professionals, students and scholars from across Canada. I have presented about Individual Development Plans and informational interviews (2021, 2022) and moderated panels about faculty hiring (2023), the value of being on search committees as a graduate student (2024) and making the most out of pit stops along your career journey (2025). **Outcomes:** The symposium has reached thousands of students from over 30 participating institutions across Canada. I have also forged many connections in the graduate community across Canada, raised the University of Guelph's profile and developed a great set of resources, which I have since used to teach professional development at Guelph.

Graduate Studies contributions

School of Environmental Sciences

Graduate Program Coordinator, SES	2018-2020
Graduate Program Assistant hiring committee, SES Member x 2	2020
SES Graduate Student Mentor for Naoya Kadota	2023-2024
Graduate Committee, MES Program coordinator	2013-2015

College/University

Graduate Program Coordinator, MSAg program	2024-2025
OGPS Graduate Community of Practice, presenter	2025
OGPS Graduate Curriculum Manager search committee, member	2024
Graduate Student Wellness Working Group, Grad. Studies Council Rep.	2023-2024
Graduate Programs and Faculty Subcommittee, Board of Graduate Studies, Chair	2022-2024
Best Practices in Grad Student Recruitment & Supervision, panelist	2023
OGPS Grad Skills and Grad orientation Committee, member	2022-2023
Cyclical Program Review of Biomedical Sciences Graduate Programs, facilitator	2023
OGPS Graduate Pathways Conference, organizing committee, member	2020-2021
Graduate Programs and Policies Subcommittee, Board of Graduate Studies, Mbr.	2021-2022
OGPS Graduate Program Coordinator Workshop, presenter	2020
Grad Skills Action committee, Member	2020
Grad Skills Community of Practice, Member	2019

Graduate Professional Community

GPDN National Graduate Student Career Symposium Planning committee, Mbr.	2022-2025
GPDN National Graduate Student Career Symposium, presenter/panel moderator	2021-2025
American Association of Universities Graduate Studies Council, Invited presenter	2021

Other Leadership contributions

Geoscience Education: Crisis or Crossroads, invited panelist	2025
Promotion and Tenure and I-EDI White Paper, co-lead	2022
Associate Director, School of Environmental Sciences	2015-2017, 2018-2019
Ontario Agricultural College Strategic Planning Committee, Univ. of Guelph	2016-2018
Departmental/School Website redesign, lead	2007, 2017
International Geoscience Programme (#512) Project co-leader	2005-2011
International Geoscience Programme (#512) Memoir editor	2006-2011
Canadian Sedimentology Research Group, Executive (Chair)	2007-2010
Undergraduate Curriculum Committee, Chair	2006-2008
Land Resource Science Executive Committee, member	2005-2006
International Geoscience Programme (#512) Field trip co-leader	2005
Canadian Sedimentology Research Group, Executive (Vice Chair)	2004-2007

Other Administrative Contributions

School of Environmental Sciences

Ecohydrology Faculty position search committee, member, 2 nd attempt	2025-present
EDI committee, member	2023-2025
Environmental Geology Instructor/Technician search committee, member	March 2021
QE or Thesis defence chair (2-5/yr)	ongoing
EDI strategy planning committee, member	Fall 2020
Recruitment-related Outreach	2002-2014
Post-Doctoral Retreat, faculty panellist/interviewer	2013
Undergraduate Curriculum Committee, member	2009-2010, 2011-2013
Curriculum Working Group for departmental merger, member	2009
Canada Research Chair Search Committee, member	2007-2008
Academic Advisor (BSc ESS Major)	2006-2008
Promotion & Tenure Committee, member	2006-2008
Undergraduate Curriculum Committee, member	2004-2006
Joint Curriculum Committee with Geography-ESS major, Member	2003-2005
School of Geog & Geol Faculty Search Committee, Graduate Rep. (McMaster)	2000-2001
School of Geog & Geol Faculty meetings, Graduate Rep. (McMaster)	1998-1999
Joint Occupational Health and Safety Committee, Graduate Rep. (McMaster)	1997-1998
Research and Professional Activities Committee, Geography (UBC)	1996-1997
Graduate Committee, Graduate Rep. Geography (UBC)	1995-1996

Faculty/College/University

Food Science Assistant Professor Search Committee, Dean's Representative	2025
Enhancing Equity for Black, Indigenous and Racialized Students - Deans Forum, panelist	2024
Strategic Transformation Advisory Group, Member	2023-2024
AVPA Scholarship of Teaching and Learning Grants, Evaluation committee Member	2020-2024
One Health Policy Fellowship Panel-watershed health panelist	2023
Ecohydrology CRC Search Committee, Dean's representative	2023-2024
Food Science CRC, ABSc Chair searches and Associate Dean OAC renewals	2022-2023

Women Work and Wellness Series, presenter, <u>The No Club</u>	2023
OAC Staff and Student Awards Committee, member	2021, 2022
OAC Land Acknowledgement Committee, Member	2022
Cyclical Program Review of Physics Undergraduate Programs, facilitator	2022
Task Force on Face-to-face teaching for F21, OAC representative	2021
Work, Women and Wellness series, presenter	2021
Campus wide IT strategy faculty workshop, participant	2020
Promotion and Tenure Appeals Committee, member	2016-2018; 2018-2020
Setback stories, wellness & mental health campaign; https://youtu.be/OaBfWlazYJU	2019
OAC Associate Deans (research, external) Search Committee, member	2018
OAC Environmental Sciences Information Night, presenter	2016
Plant Agriculture Chair Search Committee, member	2016
Plant Agriculture Chair Review, member	2015
OAC Associate Deans (academic, research, external) review committee, member	2015
University of Guelph Senate, faculty representative	2011-2014
School of Engineering, NSERC Industrial Research Chair Search Committee	2008
Faculty of Science Council, graduate student representative, McMaster Univ.	2000-2001
Let's Talk Science Board Member, McMaster Univ.	1999-2000
Faculty of Science, Graduate student representative, McMaster Univ.	1998-1999
Joint Faculty Search Committee, Forestry and Geog., member, UBC	
Faculty of Humanities, Undergraduate Student representative, McMaster Univ.	1994-1995

Professional (geology related)

G360 Institute for Groundwater Research Advisory Board, Member	2017-present
Reviewer of manuscripts (JSR; CJES; Sed. Geol.; Geology, Sedimentol., Cont. Hydrol.)	ongoing
Student Industry Mineral Exploration Workshop student nominations	2004-present
Student Industry Field Trip student nominations	2002-present
World Water Day, speaker and panelist	2025
International Association of Hydrogeologists, CDN chapter, speaker	2024
Proposal reviewer (NRCAN, MITACS)	2024
World Water Day Planning Committee, member	2022
NSERC Discovery Grant Proposal Reviewer	2020, 2022
Fonds de Recherches Nature et Tech. External assessor mid project review	2021
Conference session co-convener (T169), Geological Society of America Annual Conf.	2020
Conference session convener, International Association of Sedimentologists	2018
Canadian Journal of Earth Sciences, Guest editor for special issue	2016-2017
Unifying Groundwater science in Southern Ontario, Gaps analysis, Guelph, ON	March 2015
Fonds de Recherches Nature et Tech., External assessor for strategic clusters	2017, 2019
Student poster judge, Geological Society of America –North Central meeting	May 2013
National Geographic Society –Research Exploration grant reviewer	May 2013
Groundwater Geoscience Gap Analysis, Ontario Geol. Survey meeting, Barrie ON	Nov 2012
Fonds de Recherches Nature et Technologies, proposal reviewer	Jan 2012
Field Guidebook reviewer (175pp)	July 2011
National Science Foundation proposal reviewer	Nov 2010, May 2013, 2014
Session moderator	2004, 2005, 2011, 2012, 2013

Geoscience Societies Campus Representative	2003-2014
Geosciences-related Outreach	2002-2016

Off campus-community service

H2Awesome panel coordinator for Royal City Science	2022-2024
Science on Tap coordinator for Groundwater session, Royal City Science	2022
King George Public School Heart Garden in memory of Kamloops children	2021
Waldorf School, Gr. 6 presentation about glacial geology	2021
Royal City Science, outreach content creator and Steering Committee member	2020-present
King George Public School, Greening and Grounds Committee	2013-2020
King George Public School Science Night	2018
Career Interview-Headwaters Program	2017
Guelph Wheels in Action, volunteer coordinator	2011, 2012, 2013
Guelph Wheels in Motion, event committee and volunteer	2010
Rick Hansen Foundation-Quality of Life Committee, Guelph	2009- 2011
Pelvic Instability Network Scotland	2009-2011
CNIB volunteer canvasser	2004-2006, 2008
Canadian Cancer Society Relay for Life, participant	2005
Heart and Stroke Foundation Ride for Heart participant (50 km), Toronto	1999
Let's Talk Science Partnership Program	1998-2001

Research

Research Focus: Field-based analysis of recent and ancient glacial deposits to reconstruct the nature of past climate change and inform groundwater resource management

Current Projects

Pleistocene glacial processes and modern groundwater dynamics: a case study of the sediment–bedrock interface in Guelph, Ontario.

This research investigates how this interface was modified under glaciers and how it now affects groundwater systems in Guelph. Using a 3D geological model constructed from thousands of boreholes and data from select high-resolution bedrock boreholes in the area, the study will analyze the physical and hydraulic properties of the sediment–bedrock interface. Theories about how water flowed under glaciers will be tested, providing insights into how these historical processes influence modern groundwater flow. Findings will be used to inform existing groundwater models to improve predictions about how water moves underground.

Impact of glaciation on groundwater vulnerability

The long-term objective of my research program is to improve our ability to protect vulnerable groundwater resources in previously glaciated regions by examining and gaining new insights into how glaciation has impacted geological materials, their subsurface distribution and their hydrogeological properties at the well-field scale. The short-term objectives of my NSERC Discovery Grant are focused on three different projects: to examine the association between subsurface stratigraphy, landform at surface and groundwater quality; to explore how buried bedrock valley influence the productivity of underlying bedrock aquifers; and to identify the relationship between contact aquifers, substrate hydrology and associated glacial processes.

Understanding how groundwater, geology, and drainage system design influence on tile water quantity and quality.

This project focuses on understanding the role of geology in influencing groundwater dynamics and tile drainage function at the Huronview Demonstration Farm, where contoured and conventional tile drainage systems have been installed. Hydrogeological characterization of the site was carried out using drilling and core logging and geophysical surveys. Monitoring wells have also been installed to supplement existing infrastructure to monitor the shallow groundwater dynamics. Groundwater and tile water sampling have been used to establish groundwater quality on site. Lastly, modelling is being carried out to better understand water quality and quantity conditions underlying the contoured and conventionally tiled fields under various climate change scenarios.

Previous Projects

Groundwater multi-level system technologies for improved management of source water.
Glacial Influence on Groundwater dynamics: a case study in Guelph Ontario.
Scholarship of Teaching and Learning-Graduate Student's perception of the IDP.

Land conversion impacts on soil and water dynamics in the Highway 11 corridor.
 Quaternary geology of a contaminated site and its hydrogeological implications, Wisconsin.
 Glacial geology, land use practices and non-point source pollution at depth.
 Sustainable water supplies for the city of Guelph-Quaternary mapping.
 Deformation in Quaternary glacial deposits- reconstructing ice dynamics.
 Late Neogene climate change, Yakataga Formation, Alaska.
 Neoproterozoic glacial deposits in tectonically active basins, Norway and Canada.
 International Geoscience Programme (IGCP) project on Neoproterozoic ice ages.

Field campaigns

Quaternary drilling and core logging, Huronview Demonstration Farm	Winter 2023
Quaternary drilling and core logging, Elora and Erin	Fall 2020, Winter/Fall 2021
Quaternary drilling and core logging, South Guelph	Winter 2020
Quaternary drilling and core logging, Clarington	July 2019
Quaternary drilling and core logging, Aberfoyle	Fall/Winter 2018/2019
Quaternary drilling and core logging, Halton Hills	Fall 2016
Quaternary drilling and core logging, Clarington Transformer Station	Fall 2014 -Winter 2015
Quaternary drilling and core logging, Guelph	summers 2010-2014
Multi-proxy analysis of the Yakataga Formation, South Central Alaska	summers 2006-2007
Sedimentological analysis, Quaternary sediments, Waterloo, ON	summer 2005
Sedimentological analysis, Toby Formation, British Columbia	summer 2005
Reconnaissance study, Toby Formation, British Columbia	summer 2004
Sedimentological analysis, Smalfjord Formation, Norway	summer 2003
Sedimentological analysis, Windermere turbidite system, SW Rockies, BC	summer 2001
Sedimentological and stratigraphic analysis, Port Askaig Formation, Scotland	summer 99-00
Sedimentological analysis, Smalfjord Formation, northern Norway	summer 1998
Geomorphology of the Niagara Escarpment, Caledon, ON (contract to C. H. Eyles)	spring 1998
Lake sediment coring from ice surface, Duffy Lake, B. C.	1996-1997
Sediment coring from a drained reservoir, Downton Lake, B. C.	winter 1996
Lake sediment coring, Vancouver Island, B. C.	summer 1996
Coring deltaic sediments, Fraser River delta, B. C.	spring 1996
Analysis of Quaternary glacial sediment, Fraser Lowland, B. C.	spring 1996
Analysis of Quaternary glacial sediments, Scarborough Bluffs, Ontario	summer 1995
Measurement of joint orientation in rock outcrops, southwestern Ontario	summer 1994
Mountain Geomorphology and Forest ecology field courses, Boulder Colorado	summer 1994
Cape Cod coastal and glacial geomorphology field course, McMaster University	fall 1994

Research Grants

MITACS Elevate	2025-2026
NSERC Alliance Grant (Co-I)	2022-2025
NSERC Discovery Grant	2019-2025
MITACS Elevate	2023-2024
Guelph Institute of Environmental Research Small Grants program (Co-I)	2022
NSERC CRD MLS technologies for source water management (CO-I)	2018-2023

OMAFRA-New Directions	2018-2021
ORF-RE Grant-Sustainable water supply for Guelph (Co-I)	2009-2015
OMAFRA-University of Guelph Research Program-Environmental Sustainability	2010-2012
NSERC Discovery Grant	2008-2011
National Geographic Society Research and Exploration Grant	2006-2007
International Geoscience Programme (IGCP) project grant	2005-2009
IGCP-Canadian National committee travel grant	2005
NSERC Discovery Grant	2003-2008
Start-up funds, University of Guelph	2002
International Association of Sedimentologists Travel Grant	2002
Geological Society of America Research Grant (PhD)	2000
American Association of Petroleum Geologists Grant in Aid (PhD)	2000
Yates Fund, McMaster University	2000
Geological Association of America, Sedimentary Division field trip subsidy	2000
Geological Association of America, NE section Travel Grant	1999, 2000
The JF Harvey and HS Harvey Travel Scholarship	2000
Graduate Student Association Travel Scholarship	1998

Research contracts

Geological Survey of Canada (Ministry of Natural Resources, Canada) Sedimentology of the Elora and Erin Boreholes (\$19,500)	2021
Geological Survey of Canada (Ministry of Natural Resources, Canada) Sedimentology of the Clarington Borehole, (\$19,700)	2020
Geological Survey of Canada (Ministry of Natural Resources, Canada) Sedimentology of the Paris Moraine, (\$20,000)	2011

Other Evidence of Scholarship

On Glaciers: a conversation with artist Paul Walde and environmental scientist Emmanuelle Arnaud. McIntosh Gallery, Western University, March 12, 2024.

Catherine Bush and Emmanuelle Arnaud; A Conversation across the Disciplines-Guelph Institute for Environmental Research. <https://sites.uoguelph.ca/gier/emmanuelle-arnaud-and-catherine-bush/>

Featured in Iron-willed Women STEM Display, Guelph Museum, 2022

Arnaud, E. 2016. The Geological record of Neoproterozoic Glaciations, Online Photo Atlas. Digital Repository. <https://atrium.lib.uoguelph.ca/xmlui/handle/10214/9365>

List of publications-see below

Teaching

Teaching approach: Integrating different teaching styles and types of assignments allows me to reach and motivate students with different learning styles. It also allows students to develop critical thinking, problem solving, writing, oral presentation and field-based skills.

Instructor, University of Guelph

Graduate courses

Professional Development and certifications (IAEF 6000)	20225-2026
Major Research Project (ENVS 6500)	2022, 2025
Special Topics Groundwater and Geology (ENVS 6730)	Winter 2016, 2020, 2022
Geology of Groundwater Systems (ENVS 6720)	Winter 2019
Advanced Sedimentology (LRS 6710)	Fall 2009, Winter 2012
Glacial Sedimentary Environments (LRS 6700)	Winter 2010
Topics in Environmental Earth Science (LRS 6730/ENVS 6730)	Fall 03, W06, W17, S17, W20

Undergraduate Courses

Sedimentary Environments (ENVS 2400, 3180)	Fall 2012, 2016, 2018-present
Glacial Environments (ENVS 4360)	Winter 2017, 2019, 2020
Fundamentals of Environmental Geology (ENVS 2240)	F2016, 2018
Glacial geology (GEOL 2200/2160/ENVS2200/2160)	2003- 2008, 2010, 2012-2016
Geology and the Environment (GEOL 1050/ENVS 1050)	Fall 2009, 2011, 2015
Independent study in Earth/Env. Science (GEOL 4120/4180, ENVS 4410, 4140)	various years
Environmental Issues in Agriculture and Landscape Management (SOIL 3000)	2006-08, 2010
Field Methods in Geoscience (GEOL 3250)	2005-2007
Environmental Issues in Agroecosystems (SOIL 2200)	Winter 2005
Resources and Agroecosystems (AGR 2301)	2003-2004
Sedimentology (GEOL 4090)	2002, 2004, 2006

E-Campus Ontario course-OER available through the OPEN Library

[A multidisciplinary investigation of climate change \(Geological Perspectives lecture\)](#) 2022

Graduate Student and Postdoctoral Student Supervisor

Post Doctoral

Ashok Shaw (2022-2026): Geological and glaciological controls on interface aquifers.

Kelsey MacCormack (2010-2012): Using a multiple variogram approach to improve the accuracy of subsurface geological models. (co-advisor with Beth Parker)

PhD

Jesse Brown (2020-2026): From crystal to canyon: analyzing the evolution of a buried bedrock valley across multiple scales.

Jonathan Munn (2013-2018): Measuring groundwater flow system variability in a fractured carbonate aquifer using fibre optic distributed temperature sensing (co-advisor).

Jessica Meyer (2008-2013): Three-Dimensional Delineation and Characterization of Hydrogeologic Units in Fractured Sedimentary Rock (co-advisor with Beth Parker)

MSc

Zachary Walker (2023-2026): Geological influence on creosote contamination in a carbonate rock aquifer, Gotland Sweden (co-advisor with Beth Parker)

Rhiannon James (2022-2024): Characterizing the Potential Impact of Glacial Geology on Groundwater Flow and Tile Drainage Function.

Stephen Mugisha Mizero (2021-2023) River flow behaviour characterization and subwatershed geology: a case study in the Lake Erie Basin. (co-advisor with Genevieve Ali)

Celina Trang (2019-2022): Soil dynamics associated with land conversion and livestock expansion in the clay belt, Northern Ontario (co-supervised with Asim Biswas, withdrew)

Zexia Li (2018-2021): Water dynamics associated with land conversion and livestock expansion in the clay belt, Northern Ontario (co supervised with Jana Levison, withdrew).

Nazia Nawrin (2018-2021): Geospatial analysis of groundwater geochemistry and Quaternary Geology of Southern Ontario, Canada: a study of regional and local trends.

Sam Jacobson (2017-2021): Hydrogeological characterization and DFN-M technique development in a karstic aquifer, Florida USA. (co-advisor with Beth Parker)

Kelly Whelan (2014-2017): Hydrogeological characterization using tritium as a tracer, Clarington Transformer Station, Ontario, (co-advisor with Jim Smith), McMaster University.

Tara Harvey (2014-2016): Quaternary geology and hydrogeology at a contaminated site in a complex ice marginal system, Cottage Grove, Wisconsin

Sydney Duggan (2014-2016): Hydrogeological characterization using different drilling techniques, Clarington Transformer Station, Ontario, (co-advisor with Jim Smith), McMaster University.

Andrew Trapp (2012-2015): Hydrostratigraphy of the Paris Moraine in the Guelph area, Ontario, Canada (co-advisor with Jim Smith), McMaster University.

Anna Best (2011-2013): Non-point source pollution in Quaternary glacial deposits, Guelph, ON.

Jonathan Munn (2009-2012): High-resolution discrete fracture network characterization using inclined coreholes in a Silurian dolostone aquifer in Guelph, Ontario (co-advisor, with Beth Parker).

Michael McGill (2009-2011): Sedimentological and geomorphological investigation of the Paris Moraine in the Guelph area, Ontario, Canada.

Laura Weaver (2007-2008): Soft-sediment deformation in the Waterloo Moraine, southwestern Ontario.

Jeremy Law (2004-2005): Quaternary sediments of the Waterloo Moraine, ON. Withdrew.

Steven Aspden (2003-2005): Deformation of Quaternary glacial sediments, Mosport, Ontario.

Course-based Masters Major Research Project

Rilwan Duromola (2025) The Montney Formation: a geological marvel of the Western Canada Sedimentary Basin. (Master of Environmental Sciences).

Elisa Cacciola (2022) Reconstructing the paleoenvironments of the Coboconk/Chaumont Formation (Upper Ordovician) in Southern Ontario. (Master of Environmental Sciences).

Omar Garzon Mogollon (2022) Modelling water level changes due to climate change in the Claybelt, northern Ontario. (Master of Engineering)

Graduate Student Advisory Committee (2010-present)

Somayeh Asadi Shekafti (2025-present). Lithostratigraphic model from geophysical datasets. Fort Liard. PhD.

Henry Frederick (2025-present): Groundwater dynamics in response to pumping tests, Wisconsin (University of Iowa), MSc.

Lauren Mulkerns (2024-present): Modelling groundwater quality and quantity to assess impact of different tile drain systems, MASc.

Darla Bennett (2020-present): Measuring the behavior of contaminants in complex groundwater aquifers using Nuclear Magnetic Resonance, PhD.

Cody Fisher (2023-2026): Shallow groundwater dynamics and tile drain function, MASc

Mansour Salek (2018-2025): Road salt impacts on Centre Wellington aquifers, PhD. Withdrew.

Sophie Pierce (2023-2025): Examining Scale Dependence of Hydraulic Conductivity in Glacial Sediments for Improving Predictions of Contaminant Plume Response to Flow System Transients (University of Iowa)

Reza Khalidy (2020-2024): Carbon sequestration via soil amendments, PhD.

Emily Finger (2020-2023): Groundwater flow system characterization and the effect of supply well pumping, Erin, MASc.

Andrew Stockford (2019-2023): Geological and hydraulic characterization, HPB site, MASc.

Xiaowei Zhang (2019-2022): Grain size distribution and estimation, PhD.

Spencer Swan (2020-2022): Soil health, nutrient dynamics and land use practices in the Great Clay Belt.

Daniel Bayley (2020-2022): Human and wildlife health: a spatial analysis of shared health determinants

Jamie Bain (2019-2021): Water quality and quantity across nested agricultural watersheds, MSc.

Fernando Montano Lopez (2020-2021): Mapping and monitoring soil organic carbon in the claybelt of northern Ontario, MSc.

Connor Gorrie (2020-2022): Geophysical modelling of the Elora buried bedrock valley, MASc.

Oliver Conway White (2018-2020): Geophysical, geological and hydrological analysis of a buried bedrock valley, MASc.

Kathleen Johnson (2017-2020): Discrete fracture network characterization in sentry wells, Guelph, MASc.

Chrystyn Skinner (2016-2019): Hydraulic characterization of municipal sentry well system, Guelph, MSc

Chris Morgan (2016-2019): Hydrogeological and fracture characterization of the Wonewoc Formation, Wisconsin. MASc.

Donovan Capes (2014-2017): Using heat as a tracer in boreholes sealed with underground liners to characterize the fracture network of an exposed bedrock river. MSc.

Sarah Beatty (2010-2015): Hydrophobicity in contaminated Quaternary sediments, PhD, McMaster University.

Celia Kennedy (2010-2015): Geological controls on groundwater-surface water interactions PhD.

Qualifying Examination committee

Hamidreza Dannak (2025): Heterogeneity in fractured dolostone bedrock
Mansour Salek (2021): Geology of groundwater flow systems
Lance Ouellette (2018): Sediment transport and sedimentation related to phosphorus
Greg Martin (2012): Hydrogeology of glaciated margins
Jessica Meyer (2010): Geology, basin analysis, sequence stratigraphy and bounding surfaces

Thesis Defense Committee (Internal-external or external examiner)

James Thayer, (PhD, Earth Sciences), Western University, March 2025
Jack Moore, (MSc, Environmental Sciences), Guelph, April 2024
Cody Kupferschmidt, (PhD, Engineering), Guelph, March 2024
Nathan Glas (MAsc, Engineering), Guelph, March 2021.
Jonathan Kennel (PhD, Engineering), Guelph, February 2020.
Joanna Olesiuk (MAsc, Engineering), Guelph, May 2018.
Shannon Carto (PhD, Earth Science), University of Toronto, 2010.

Teaching Staff Supervision

Jesse Brown (2025-2026): instructional support for geology courses
Alyson Brown (2018-present): instructional support for geology courses
Kim Bolton (2018-2021): Advising support for course-based master's program
Steve Sadura (2002-2018): field and research assistant related to various projects; instructional support for geology courses.
Ivan Lee (2007): assistant for departmental website content development
Kim Schneider (2007): assistant for departmental website content development
Tracy Rowlandson (2006): Undergraduate curriculum recruitment project assistant

Undergraduate Research or Field Assistant Supervisor

Eshaan Giridar (2022) research assistant, trends in IDP skills assessments results in SES
Daniel Bayley (2020) research assistant, spatial analysis of geology and water quality
Rhiannon James (2019) research assistant, soil and water dynamics in the clay belt
Grant Hagerdorn (2015) research assistant, groundwater susceptibility mapping in Guelph
Tara Harvey (2012-2013) research assistant, hydrogeology of glaciated margins project
Ramita Kedia (2012) research and field assistant, Guelph Quaternary mapping project
Kathleen Nesbitt (2011-2012) research & field assistant, Guelph Quaternary mapping project
Erica Gilbeaut-Ryan (2011): research and field assistant, Guelph Quaternary mapping project
Kyle Press (2011): research assistant, Guelph Quaternary mapping project
Colin Gutcher (2010, 2011): field assistant, Guelph Quaternary mapping project
Sarah Ouellette (2006-07): field assistant, Waterloo moraine and Alaska project
Laura Weaver (2005-06): research/field assistant, Grimsby Formation and Waterloo Moraine
Mitch Allison (2005): field assistant for Toby Formation project, British Columbia
Chris Keefer (2004): field assistant for Toby Formation project, British Columbia
Leah Dalrymple (2004): field assistant and research assistant for Oak Ridges Moraine project
Steven Aspden (2003): field assistant for Smalfjord Formation project, Norway

Undergraduate Student Independent Study Project Supervisor

Bridget Leonard (W2025)	
Henry Bourret (W2024)	Hayley Tuson (W2024)
Grant Hagedorn (W2017)	Katherine Shirriff (W2017)
Kelly Kamo McHugh (F2013)	Lorraine Lebeau (F2015)
Katy Nesbitt (W2012)	Dylan Gillingham (W2013)
Alija Bos (N/A)	Ryan Hoskins (W2005)
Laura Weaver (F2005)	Jenna Rapai (W2004)
Sevi Modestou (F2005)	Ryan Dawson (W2004)
Victor Naqvi (W2006)	Pam Montgomery (2003)
Andrew Snowdon (F2004)	John Gordon (W2005)

Individual Development Plan Coordinator

Fall /Winter 2019-present

Oversee the use of the IDP by students in the required thesis-based seminar ENVS 6900. Includes introducing the IDP, providing resources and grading the career notes, IDP and final deliverable of all enrolled students. Outcome: This has enabled the personal growth, network development and career reflection of students

Teaching Grants

E-campus Ontario A multidisciplinary investigation of Climate Change (collaborator)	2021
SFOAC Student Teaching Enhancement Fund	2011
OAC Teaching Trust Fund	2011
SFOAC Student Teaching Enhancement Fund (Geology sieves and shaker)	2009
Canadian Institute of Mining and Metallurgy field course subsidy (GEOL 3250)	2007
Canadian Institute of Mining and Metallurgy field course subsidy (GEOL 3250)	2006
SFOAC Teaching Support Fund (Geology field equipment)	2006

Teaching Dossier available upon request

Professional Development

Note: Canadian Association of Graduate Studies (CAGS), Office of Teaching and Learning (OTL, formerly COLES, TSS), Graduate and Postdoctoral Development Network (GPDN), Open Learning (OL, now School of Continuing Studies).

Leadership

CAGS Community of Practice on Graduate Supervision	2025-2026
The augmented Knowledge Worker in Higher Education (Contact North)	2026
Relationships Matter: strategies for inclusive & supportive graduate supervision (McGill)	2026
Co-Intelligence: <u>Living and working with AI</u> Book Club (OTL)	2026
From Surviving to Thriving: The straight A's for change management (NASPA-AGAPSS)	2026
E-Campus Ontario Microcredentials Forum 2025	2025
GPDN conference: Successes, Challenges and New Directions	2025
CAGS conference: Grad Education as Public Good: leadership, Advocacy and Impact	2025
Sharepoint Introduction	2025
CAGS Summer Leadership Program (3 days)	2025
GPDN Annual Conference: Empowering Graduate and Postdoctoral Success	2024
Influencing Without Authority: strategies for University Faculty and Staff	2024
Unlocking revenue and relevance: how to use microcreds to drive institutional success	2024
Change Leadership, Pullias Center for Higher Education, USC Rossier	2024
CAGS conference: Inclusive Excellence in Graduate Supervision and Mentorship	2023
GPDN conference: Building Community-from practice to action	2023
Leading your team through change (Alex Letona, UoG)	2023
Navigating through difficult conversations (Oliver Martin, UoG)	2022
Managing through conflict (Linda Watt, UoG)	2022
Achieving win-win negotiations in relationships (Oliver Martin, UoG)	2022
CAGS conference: The future of Graduate Education	2022
GPDN conference: Evolving pathways: growth, change and sustainability	2022
Faculty attitudes to PhD career outcomes and Skills training, CAGS	2021
Transforming Grad Education into awesome post pandemic careers, CAGS	2021
Immunity to Change, Women, Work and Wellness workshop	2021
CAGS conference: Transforming Graduate Education,	W 2021
Mentor Training, Mentorship Programs COP, GDPDN with Stanford Univ.	2021
Vanto Group Webinar-Leadership in uncertain times	2020
GPDN annual conferences	2019-2020
Vanto Group Leadership course- Leaders of OAC	2019
Women and Leadership series	2019
Educating for the future: Learning Outcomes and Experiential Symposium (OUCQA)	2018
Women in Academia: advice from senior colleagues	Feb. & May 2007
Confronting underperformance (HR client services)	2005
Supervising Teaching Assistants (Teaching Support Services, U of G)	Jan. 2005
Lab management workshop (Gregor Reid, Teaching Support Services, U of G)	Oct. 2004
Supervising and Advising Graduate Students (Isobel Heathcote, U of G)	Nov. 2002
Leading effective discussions (Centre for Leadership and Learning, McMaster)	2000

Wellness and Safety

Women, work and wellness series (3-4 workshops/semester)	2020-present
Science of Happiness Wellness Seminar (UoG, Homewood Health)	July 2025
Trauma Informed Care: connecting with compassion (UoG)	Jan 2025
Letting Go and Moving Forward, Jackie Lauer	Jan, Feb 2025
Pleasure Craft Operator Certificate, Canadian Power and Sail Squadron	2023
UoG Let's Talk, Joti Samra	Jan 2021
Graduate Student health and mental well-being (CAGS)	Nov 2020
Sexual Violence Response and Support and Mental Health training	2020
SafeTalk Suicide Alertness Training	2017
Sexual violence referral and support training	2017
Women in Academia-Balancing work and family in the academic environment	March 2010
Restricted Operator's Certificate (Maritime), Industry Canada, Can-Boat	2026
Worker Health and Safety Awareness Training	2024
Supervisor Health and Safety Awareness and Due Diligence	2016
Wilderness Medical Associates-Wilderness First Responder	2006
Canadian Firearms Safety Course (Alaska Field work)	2006
Wilderness Medical Associates- Wilderness Advanced First Aid	2004
St. John's Ambulance Standard First Aid and CPR	2003

Equity, Diversity and Inclusion

Kairos Blanket Exercise, UofG	2026
Principles of Equitable Faculty Recruitment: Unconscious Bias in the Hiring Process	2025
SES Seminar: positionality and curriculum violence in building inclusive teaching practice	2024
Identity, Bias and Valuing differences at work (women work and wellness)	2024
Aboriginal Canada, 12-week online course, University of Alberta	2024
Relationships & Research-working w/ Indigenous peoples (Faculty Info Exch.)	2024
International Student academic Supports workshop	2023
TRC Executive Summary Reading Challenge	Fall 2021-summer 2022
Acknowledging Indigenous Lands (Cara Whekamp)	Summer 2022
Positive Space Training Module	Aug 2021
A supportive approach to anti-oppression and resilience (K. Sutton, KGPS, 6hrs)	Spring 2021
Call it out? Identifying and responding to microaggressions, (OAC, DHR)	April 2021
Innovative inclusion: Bldg strategic approaches to anti-oppression in the classroom	May 2021
What does it mean to be a student of colour on Canadian campuses today? (CAGS)	Feb 2021
Bias in Peer Review (Tri-council training module)	Aug 2020
Embedding inclusions in our program (Shalini Nag, GPDN)	Dec 2020
Black graduate students and the truth of oppression conversation (CAGS)	Nov 2020
Cultural Humility Primer- (Shalini Nag, GPDN)	Nov 2020
National Dialogues and Action for Inclusive Higher Ed. and Communities (UofT)	Oct 1&2 2020
Strategic planning for EDI committee (8hrs in 4 workshops) (Rainbow Diversity Inst.)	Fall 2020
Race and Racism at UofG (Student Experience)	Aug 2020
EDI for research proposal and HQP training, OAC workshop	2019

Teaching Training workshops and mini-courses participant

Leveraging AI for Teaching: creating activities, lectures, and course materials	2025
Scaling for increasing enrolment (2 workshops)	2024
Teaching with Artificial Intelligence Series (June 3-7, 8 workshops)	2024
AI and Academic Integrity webinar, Sarah Eaton, U of Calgary	2024
Work-Integrated Learning Community of Practice, GPDN	2022-2023
How to Design a Micro-Credential that Meets Demand (Contact North)	Feb 2022
Asynchronous Active learning Workshop (3hrs) (OTL)	July 2021
Digital tools for asynchronous active learning (OL/OTL)	July 2021
Digital tools for synchronous active learning (OL/OTL)	July 2021
Real Time Synchronous Active Learning Workshop (3hrs) (OTL)	July 2021
Flipped Classroom Q&A (OTL)	June 2021
Reflect, Share and Connect: open conversations about teaching 2020-21	May 2021
Supporting Diverse Learning Environments Working Grp. (TLI conference)	May 2021
Teaching remotely in a pandemic: lessons from F20 (Lang School and CSAHS)	Dec 2020
Provost Teaching Dialogue	October 2020
Starting Strong (Office of Teaching and Learning webinar)	Aug 2020
Tools for providing meaningful and quick feedback to students (Lang)	Aug 2020
Remote supervision of graduate students (CAGS webinar)	July 2020
Enhancing Active & Collab. Learning in Flexible Course Design & Delivery (Lang)	June 2020
Effective and Flexible Course Design: The Big Picture (Lang School of Bus)	June 2020
Course Redesign Institute (2-day, OTL): adapting assessments to the remote env.	June 2020
Academic Integrity in Remote Delivery: Reflection on W20 (OTL)	May 2020
Moving online: What our students are saying (OTL)	May 2020
Course ReDesign Institute (4-day, COLES)	June 2012
Teaching and Learning Innovation Conference (COLES)	May 2012
Developing rubrics in Courselink (COLES)	Jan 2012
The Entitlement Generation-implications for teaching and learning (TSS)	Dec 2009
Encouraging academic integrity (Julia Christensen Hughes)	Oct 2009
Desire to Learn/WebCT workshops (TSS)	2003, 2004, 2006, 2009
Undergraduate Curriculum Development Symposium (TSS)	June 2007
Growth and development of University Teachers (Maryellen Weimer)	Nov. 2005
Designing Assignments to Encourage Integrity (Teaching Support Services, U of G)	March 2003
New Faculty Orientation, (Teaching Support Services, U of G)	Aug. 2002
Teaching Student with disabilities (Centre for Leadership and Learning, McMaster)	2000
TA day Instructional Workshops (McMaster University)	1997-1999
ISW Teaching Assistant Workshop	Fall 1995

Professional- Glacial Geology Research Related

Int'l Association of Hydrogeologists, local chapter seminars	2023-2026
Faculty Writing Retreat (UoG Library workshop)	2016, 2018-2025
Groundwater geosciences in Southern Ontario Open House	2015-2026
Sessions on Research Security and Safeguarding Science	2024
Relationships & Research-working w/ Indigenous peoples, Faculty Info Exch.	2024
Annual Ontario Geological Survey Virtual Showcase	2023, 2024

Harvesting data at Ontario's Agri-food research centres webinar	2021
SES 2-day research retreat, Niagara Peninsula	2019
Consortium for Groundwater Research-annual meeting	2019
OAC faculty development Series-Investing in your success	2019
KTT Plan Development (SES and OMAFRA)	2016
Indigenous Communities, Community of Practice	Nov. 2015, Feb 2016
Cunningham Symposium: Facies Analysis revisited	2014
Navigating Tenure and Promotion (Teaching Support Services (TSS)	April 2011
Pleasures and pitfalls of interdisciplinarity (Cathy Davidson, Duke Univ.)	Sept. 2006
Women in Science Roundtable Discussion (Faculty of Engineering)	2005
Exxon Production Research sequence stratigraphy short course, Toronto	1998

Professional- Geology field trips (Teaching and Research)

note: CANQUA-Canadian Quaternary Association, GAC-Geological Association of Canada, GSA-Geological Society of America, IAS-International Association of Sedimentologists, IAH-Int'l Assoc of Hydrogeologists

Generation of the Palouse Loess-Eastern Washington State, USA (GSA)	2017
Mount St. Helens eruption-hydrogeomorphic and ecological responses (GSA)	2017
Glacitectonic deformation at West Runton, Norfolk, UK (Geol.Soc.London)	2016
Contrasting terrains (Lake Michigan and Saginaw Lobe (GSA-NC)	2013
Hydroelectric power generation in Niagara Falls (IAH)	2012
Cores from the Ben Nevis and Jeanne D'Arc Reservoirs, Newfoundland (GAC)	2012
Rock core Research Center & National Ice Core Laboratory, USGS Denver (GSA)	2010
Esker-fan aquifers in the South Nation Watershed, Ottawa, ON (CANQUA)	2007
Kimberlite mines of the Slave Province, Northwest Territories (GAC/MAC)	2007
The Great Centralia mine fire, Pennsylvania, USA (GSA)	2006
Quaternary geology of an interlobate area, Northeastern Ohio (North Central GSA)	2006
Neoproterozoic Uinta Mountain Group of northeastern Utah (GSA)	2005
Pocatello Formation and overlying strata, southeastern Idaho (GSA)	2005
Glacial Sediments and Landforms in Southwest Wales (IAS)	2005
3D mapping of Quaternary deposits in the Waterloo region, Ontario (GAC/MAC)	2004
Sedimentology and environments of Silurian strata, Niagara Escarpment (GAC/MAC)	2004
Late Pleistocene glacial history of Whidbey Island, Washington, USA (GSA)	2003
From deserts to glaciers, Karoo Basin, South Africa (IAS)	2002
Cap carbonates and snowball Earth events, Otavi margin, Namibia (IAS)	2002
Neoproterozoic Boston Bay Group, Massachusetts (GSA)	2001
Quaternary sea-level change and coastal evolution in Eastern Maine (GSA)	2001
Neoproterozoic Glacial record, Death Valley, California (GSA)	2000
Cold Region Landscapes Symposium field trip, S. Ontario, Wilfrid Laurier Univ.	1998
Holocene sea-level change, Middle St. Lawrence estuary (GAC/MAC)	1998
Neoproterozoic sedimentation and tectonics in West Central Utah (GSA)	1997
Karst geomorphology of Kentucky, McMaster University	1997

Professional-Scholarship of Teaching and Learning Related

Inquire (1-year program, IDP research project; Office of Teaching and Learning)	2019-2020
Ethical Conduct for research involving Humans course on Research Ethics (TCPS2:CORE)	2019

Engaging in the Scholarship of Teaching and Learning (OPEN-Ed)
Taking Stock-Research in Education (TSS, Julia Christensen Hughes)
Getting Started with teaching and teaching scholarship (Don Woods, U of G)

Sept 2013
Feb 2011
Sept 2003

Publications

Refereed journal articles (Student co-authors that I directly supervise shown in bold)

- Brown, J.**, Dix, G., Parker, B. L., Steelman, C.M., Arnaud, E. 2025. Between two basins: facies analysis and microporosity of middle Silurian platform carbonate on the Algonquin Arch, Southwestern Ontario. *Journal of Sedimentary Research*, 95: 978-1003. DOI: 10.2110/jsr.2024.093.
- Gorrie, C., Steelman, C.M., Conway-White, O., Smiarowski, A., Arnaud, E., and Parker, B.L. 2025. Generating a statistically constrained Quaternary model of a buried bedrock valley using FDEM. *Groundwater*. doi: 10.1111/gwat.13478.
- Arnaud, E., Harvey, T., Weaver, L., Meyer, J., Parker, B. 2025. Ice marginal settings: sediment heterogeneity, architecture and hydrogeological implications. *Earth-Science Reviews*, 105059. <https://doi.org/10.1016/j.earscirev.2025.105059>.
- Arnaud, E., and Cahill, S. 2024. Graduate Student Perceptions of the Effectiveness of Individual Development Plans. *Canadian Journal of Higher Education*, 54 (1): 71-88.
- Nawrin, N.**, Arnaud, E., Priebe, E. 2024. Geospatial analysis of groundwater arsenic and fluoride in Quaternary aquifers of southern Ontario. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2024.171485>
- Kupferschmidt, C.** and Arnaud, E. 2024. The 1870's Saskatchewan River avulsion: ice jam or open water flood? A probabilistic approach for cold climate river avulsions. *Earth Surface Processes and Landforms*, 49: 1047-1057. <https://doi.org/10.1002/esp.5750>.
- Conway-White, O., Steelman, C.M., Arnaud, E., Ugalde, H., Munn, J., Parker, B.L. 2023. Constraining the lithostratigraphic architecture of a buried bedrock valley using surface electrical resistivity and seismic refraction tomography. *Canadian Journal of Earth Sciences*, 60: 333-349.
- Khalidy, R., Arnaud, E., Santos, R. M. 2022. Natural and human induced factors on the accumulation and migration of pedogenic carbonate in soil: a review. *Land*, 11 1448. <https://doi.org/10.3390/land11091448>
- Meyer, J., Munn, J, Arnaud, E., Kennel, J, Parker, B.L. 2022. Graphical Shading Logs – An Improved Approach for Collecting High Resolution Sedimentological Data at Contaminated Sites. *Groundwater Monitoring & Remediation*, 42 (3):59-74. <https://doi.org/10.1111/gwmr.12521>
- Conway-White, O., Steelman, C.M., Smiarowski, A., Ugalde, H., Endres, A.L., Arnaud, E., Parker, B.L. 2022. Improving spatial characterization of buried bedrock valleys through airborne frequency-domain electromagnetic, residual magnetic, and surface resistivity measurements. *Journal of Applied Geophysics*, 199: 104584. <https://doi.org/10.1016/j.jappgeo.2022.104584>
- Harvey, T. M.**, Arnaud, E., Meyer, J.R., Steelman, C.M., Parker, B. L. 2019. Characterizing scales of hydrogeological heterogeneity in ice-marginal sediments in Wisconsin, USA. *Hydrogeology Journal*, 27: 1949-1968. DOI: 10.1007/s10040-019-01978-1.
- Russell, H. A. J., Arnaud, E., Bajc, A. F., Sharpe, D.R. 2018. Quaternary geology of southern Ontario and applications to hydrogeology. *Canadian Journal of Earth Sciences, Special issue on Quaternary geology of Southern Ontario and applications to hydrogeology*, 55: v-viii.

- McCormack, K.,** Arnaud, E., Parker, B. L. 2018. Using a multivariogram approach to improve the accuracy of subsurface geological models. *Canadian Journal of Earth Sciences, Special issue on Quaternary geology of Southern Ontario and applications to hydrogeology*, 55:786-801, DOI: 10.1139/cjes-2016-0112
- Arnaud, E., **McGill, M., Trapp, A.,** Smith, J.E. 2018. Subsurface heterogeneity in the geological and hydraulic properties of the hummocky Paris Moraine, Guelph, Ontario. *Canadian Journal of Earth Sciences, Special issue on Quaternary geology of Southern Ontario and applications to hydrogeology*, 55: 768-785. DOI: 10.1139/cjes-2016-0161.
- Steelman, C.M., Arnaud, E., Pehme, P., Parker, B. L., 2018. Geophysical, geological and hydrogeological characterization of a tributary buried bedrock valley in Southern Ontario. *Canadian Journal of Earth Sciences, Special issue on Quaternary geology of Southern Ontario and applications to hydrogeology*, 55: 641-658. DOI: 10.1139/cjes-2016-0120.
- Meyer, J.,** Parker, B. L., Arnaud, E., Runkel, A.C., 2016. Combining High Resolution Vertical Gradients and Sequence Stratigraphy to Delineate Hydrogeologic Units for a Contaminated Sedimentary Rock Aquifer System. *Journal of Hydrology*, 534:505-523.
- Arnaud, E., **Best, A.,** Parker, B., Aravena, R., Dunfield, K. 2015. Transport of *Escherichia coli* through a thick vadose zone. *Journal of Environmental Quality, Special Issue on Microbial Fate and Transport in the Subsurface*, 44 (5): 1424-1434.
- Best, A.,** Arnaud, E., Parker, B. L., Aravena, R., Dunfield, K. 2015. Effects of glacial sediment type and land use on nitrate patterns in groundwater. *Groundwater Monitoring and Remediation Special Focus Issue on Monitoring and remediation of agricultural non-point sources impacting groundwater quality*, 35: 68-81.
- Arnaud, E. 2011. The paleoclimatic significance of deformation structures in Neoproterozoic successions. *Invited review paper for Special Issue on Clastic Sedimentology and the Neoproterozoic Glaciations, Sedimentary Geology*, 243-244: 33-56.
- Weaver, L. K.,** Arnaud, E., Bajc, A. 2011. Distribution of strain signatures in Quaternary sediments, Regional Municipality of Waterloo, Ontario, Canada. *Canadian Journal of Earth Sciences*, 48: 1154-1170.
- Weaver, L. K.** and Arnaud, E. 2011. Polyphase glacial deformation in the Waterloo Moraine, Kitchener, Ontario, Canada. *Sedimentary Geology*, 235: 292-303. Published online, August 3, 2010.
- Arnaud, E. 2008. Deformation in the Neoproterozoic Smalfjord Formation, northern Norway: an indicator of glacial depositional conditions? *Sedimentology*, 55: 335-356.
- Arnaud, E. and Eyles, C. H. 2006. Neoproterozoic environmental change recorded in the Port Askaig Formation, Scotland: climatic and tectonic controls on sedimentation. *Sedimentary Geology*, 183:99-124.
- Arnaud, E. and Eyles, C. H. 2004. Glacial influence on Neoproterozoic sedimentation: The Smalfjord Formation, northern Norway- reply. *Sedimentology* 51: 1423-1430.
- Arnaud, E. 2004. Giant cross-beds in the Neoproterozoic Port Askaig Formation, Scotland: implications for snowball Earth. *Sedimentary Geology* 165: 155-174.
- Arnaud, E. and Eyles, C. H. 2002. Catastrophic mass failure of a Neoproterozoic glacially-influenced continental margin, the Great Breccia, Port Askaig Formation, Scotland. *Sedimentary Geology* 151: 313-333.
- Arnaud, E. and Eyles, C. H. 2002. Glacial influence on Neoproterozoic sedimentation: The

Smalfjord Formation, northern Norway, *Sedimentology*, 49: 765-788.

Eyles, N., Arnaud, E., Scheidegger, A. E. and Eyles, C. H. 1997. Bedrock jointing and geomorphology in Southwestern Ontario, Canada: an example of tectonic pre-design. *Geomorphology*, 19: 17-34.

Book

Arnaud, E., Halverson, G. P. and Shields-Zhou, G. (eds), 2011. The Geological Record of Neoproterozoic Glaciations. *Geological Society of London, Memoirs* 36. 735 pp.

Book Chapters

Arnaud, E., Halverson, G. P., Shields-zhou, G. 2011. The geological record of Neoproterozoic Ice Ages. *In: Arnaud, E., Halverson, G. P. and Shields-Zhou, G. (eds). The Geological Record of Neoproterozoic Glaciations. Geological Society of London, Memoirs* 36, 1-16.

Arnaud, E. & Etienne, J. L. 2011. Recognition of glacial influence in Neoproterozoic sedimentary successions. *In: Arnaud, E., Halverson, G. P. and Shields-Zhou, G. (eds). The Geological Record of Neoproterozoic Glaciations. Geological Society of London, Memoirs* 36, 39-50.

Arnaud, E., & Fairchild, I. J. 2011. The Port Askaig Formation, Dalradian Supergroup, Scotland. *In: Arnaud, E., Halverson, G. P. and Shields-Zhou, G. (eds). The Geological Record of Neoproterozoic Glaciations. Geological Society of London, Memoirs* 36, 635-642.

Smith, M. D. S., Arnaud, E., Arnott, R.W.C., & Ross, G.M. 2011. The record of Neoproterozoic glaciation in the Windermere Supergroup, southern Canadian Cordillera. *In: Arnaud, E., Halverson, G. P. and Shields-Zhou, G. (eds). The Geological Record of Neoproterozoic Glaciations. Geological Society of London, Memoirs* 36, 413-423.

Rice, A.H.N., Edwards, M.B., Hansen, T., Arnaud, E., & Halverson, G. P. 2011. Glacigenic rocks of the Smalfjord and Mortensnes Formations, Vestertana Group, E. Finnmark, Norway. *In: Arnaud, E., Halverson, G. P. and Shields-Zhou, G. (eds). The Geological Record of Neoproterozoic Glaciations. Geological Society of London, Memoirs* 36, 593-602.

Arnaud, E. and Martini, I. P. 2008. Glaciations- Pre-Quaternary. In Gornitz, V. (ed) Encyclopedia of Paleoclimatology and Ancient Environments. Encyclopedia of Earth Sciences Series, Dordrecht, Netherlands: Springer, 384-389.

Chesworth, W., Perez-Alberti, A., & Arnaud, E. 2008. Ice Erosion. In Chesworth, W. (ed) Encyclopedia of Soil Science. Encyclopedia of Earth Science Series. Dordrecht, Netherlands: Springer, p. 333-338.

Non-refereed publications and Technical Reports (Student co-authors that I directly supervise -in bold)

Arnaud, E. 2021. Sedimentology samples for boreholes in the Elora and Erin Area. Task 2. Sample Characterization report. Technical report for Geological Survey of Canada, Natural Resources Canada, 14 pp.

Arnaud, E. 2021. Sedimentology samples for boreholes in the Elora and Erin Area. Task 1. Sample collection report. Technical report for Geological Survey of Canada, Natural Resources Canada, 17pp.

Arnaud, E. 2020. Sedimentology of the Clarington Borehole. Task 1: Drilling Report. Technical report for Geological Survey of Canada, Natural Resources Canada, 13 pp.

Hagedorn, G. W., Paulen, R. C., Fortin, R., and Arnaud, E. 2017. Chapter 5: Radiometric domains and the integration of multiple gamma-ray data sources for a remote area of

- Northern Quebec. In GEM 2 Hudson-Ungava project 2017 report of activities for the Core Zone: surficial geology, geochemistry, and gamma- ray spectrometry studies in northern Quebec and Labrador. Geological Survey of Canada, Open File 8331. p. 36-40.
- Knight, R. D.; Landon-Browne, A. R. R., Arnaud, E., Russell, H.A.J. 2016. Portable XRF spectrometry results from the Clarington borehole, southern Ontario. Geological Survey of Canada Open File 7920, 18pp. doi: 10.4095/298819.
- Best, A.** and Arnaud, E., Dunfield, K., Aravena, R, Parker, B.L., Parkin, G. 2013. Between Soil and Bedrock-how sediment affects groundwater quality. Environmental Sustainability Research Forum 2013, Guelph, ON, poster.
- Arnaud, E. and **Weaver, L.** 2011. Significance of deformation in hydrogeologic investigations of Quaternary glacial sediments. *GeoHydro 2011 Conference Proceedings paper*, 5 pp.
- Arnaud, E. 2011. Sedimentology of the Paris-Guelph area-Paris Moraine. Task 1, literature review, technical report for Geological Survey of Canada, Natural Resources Canada, 6 pp.
- Arnaud, E. & **McGill, M.** 2011. Sedimentology of the Paris-Guelph area-Paris Moraine. Task 2, Geophysical Report, technical report for Geological Survey of Canada, Natural Resources Canada, 18 pp.
- Arnaud, E. & **McGill, M.** 2011. Sedimentology of the Paris-Guelph area-Paris Moraine. Task 3, Drilling Report, technical report for Geological Survey of Canada, Natural Resources Canada, 22 pp.
- Arnaud, E. & **MacCormack, K.** 2011. Sedimentology of the Paris-Guelph area-Paris Moraine. Task 4, Regional stratigraphic context, technical report for Geological Survey of Canada, Natural Resources Canada, 15 pp.
- Arnaud, E. and Shields, G. 2005. The sedimentary record of a Neoproterozoic glaciation. (IGCP# 512 International Field workshop guidebook), *International Association of Sedimentologists Conference on Glacial Sedimentary Processes and Products*, University of Wales, Aberystwyth, Aug. 29-Sept. 3, 2005, 60 pp.
- Arnaud, E. 2000. Sedimentological analysis of the glacial Port Askaig Formation, Scotland. AAPG Foundation Grants-in-Aid recipients for 2000 Abstracts. *AAPG Bulletin*, 84:1860.
- Arnaud, E. and Church, M. 1999. Detecting the effects of forestry on lake sedimentation on the west coast of Vancouver Island, B.C. A project of Forest Renewal British Columbia. 25p.

Refereed conference presentations (Student co-authors that I directly supervise - in bold)

- Walker, Z.**, Parker, B, Arnaud, E. 2026. A robust geologic framework to inform creosote NAPL flow, transport and fate in an anisotropic carbonate aquifer. NGWA.
- Munn, J., Stahl, E., Douglas, A., **Shaw, A.**, Arnaud, E., Douglas, A. 2026. The Guelph Groundwater Model: Innovation and Collaboration for effective water management. In Burt, A.K., Colgrove, L.M., Ford, D., Holysh, S., Kalmo, K.J.J., Rivard, C. and Strynatka, S.A. compilers. 2026. Ontario Groundwater Geoscience 2026 Open House; Ontario Geological Survey, Open File Report 6423, p. 27.
- Mulligan, R.P.M., Burt, A.K., **Shaw, A.**, Arnaud, E., Paulen, R.C. 2026. Diving down through the dirt: unique aspects of the sediment-bedrock interface. In Burt, A.K., Colgrove, L.M., Ford, D., Holysh, S., Kalmo, K.J.J., Rivard, C. and Strynatka, S.A. compilers. 2026. Ontario Groundwater Geoscience 2026 Open House; Ontario Geological Survey, Open File Report 6423, p.25.

- Mulkerns, L., Levison, J., Steelman, C., Arnaud, E. 2026. Modelling the influences of tile drain design on water balance and nutrient transport in mid-western Ontario. *In* Burt, A.K., Colgrove, L.M., Ford, D., Holysh, S., Kalmo, K.J.J., Rivard, C. and Strynatka, S.A. compilers. 2026. Ontario Groundwater Geoscience 2026 Open House; Ontario Geological Survey, Open File Report 6423, p.24.
- Frederick, H.W., Arnaud, E., Parker, B.L., Meyer, J.R. 2025. Using Dynamic High-Resolution Head Profile Responses to Recharge and Pumping to Assess Changes in Vertical Hydraulic Conductivity. AGU annual meeting, New Orleans. (poster)
- Mulkerns, L., Levison, J., Steelman, C., Arnaud, E., Fisher, C., James, R. 2025. Developing an integrated watershed model in mid-western Ontario to examine the impact of tile drainage system design on groundwater, water balance and nutrient transport. GAC-MAC-IAH-CNC 2025, Ottawa.
- Burt, A. et al. 2025. Survey-client collaboration-ripples in a pond. GAC-MAC-IAH-CNC 2025, Ottawa.
- Fisher, C., Levison, J., Steelman, C., Arnaud, E., Mulkerns, L., James, R. 2025. Impacts of contour and pattern tile drain systems on groundwater quality and quantity in southwestern Ontario. GAC-MAC-IAH-CNC 2025, Ottawa.
- Walker, Z.**, Parker, B., Arnaud, E., Chapman, S., Pehme, P., Kroeker, R., and Kennel, J.: Development of a Robust Geological Model to Explain Creosote Flow and Transport in a Sole-Source Carbonate Aquifer, EGU General Assembly 2025, Vienna, Austria, 27 Apr–2 May 2025, EGU25-14065, <https://doi.org/10.5194/egusphere-egu25-14065>, 2025.
- Shaw, A.** Best, A., Martin, S., Van Vliet, D., Munn, J., Parker, B., Arnaud, E., 2025. Optimizing Groundwater Resource Management in Guelph Ontario through Quaternary Geological Insights. Ontario Groundwater Geoscience Open House, February 11, 2025. (Invited talk).
- Nawrin, N.** Arnaud, E and Priebe, E. 2025 Geospatial analysis of arsenic and fluoride in Quaternary Aquifers of Southern Ontario. Ontario Groundwater Geoscience Open House, February 11, 2025. (invited talk)
- Fisher, C., Levison, J., **James, R.**, Arnaud, E., Mulkerns, L., Steelman, C. 2025 Influences of groundwater, agronomy and drainage system design on tile water quantity and quality. Ontario Groundwater Geoscience Open House, February 11, 2025. Poster session. *Awarded best poster.*
- Van Vliet, D., **Shaw, A.** and Arnaud, E. 2024. A collaborative framework advancing the city of Guelph's Source Water Protection Program. Latornell Conservation Symposium, Woodbridge, October 8-9, 2024.
- Frederick, H. W., Arnaud, E., Parker, B., Meyer, J. 2024. Monitoring transient changes in high resolution vertical gradients to improve hydrostratigraphic units for glaciogenic sediments at a contaminated site. Geological Society of America, *Abstracts with programs*, 56 (5): doi: 10.1130/abs/2024AM-404677.
- Brown, J.**, Dix, G., Steelman, C.M., Parker, B., Arnaud, E. 2024. There is more to carbonate rock porosity than counting fossils: insight from depositional, diagenetic and structural histories of the regional Silurian Lockport Dolostone Aquifer in Elora Ontario, Canada. Geological Society of America, *Abstracts with programs*, 56 (5): doi: 10.1130/abs/2024AM-403950.
- Fisher, C.**, Levison, J., Arnaud, E., Steelman, C. 2024. Understanding groundwater, agronomy

- and drainage system design influences on tile water quantity and quality. GeoMontreal 2024.
- Salek, M., Parker, B., Gharabaghi, B., Arnaud, E., Levison, J., Munn, J. 2024. Groundwater vulnerability to road salt in multilayered fractured bedrock aquifers: the City of Guelph and suburbs, ON Case study. Annual Meeting of the CGU, Ottawa.
- Brown, J.** Arnaud, E., Dix, G. R., Steelman, C., Parker, B., 2023. Between two basins: facies analysis of Ontario Silurian carbonate rocks near a buried bedrock valley. Geological Society of America, *Abstracts with programs*, 55 (6): <https://doi.org/10.1130/abs/2023AM-394931>; Pittsburgh.
- James, R.**, Arnaud, E., Steelman, C., Levison, J. 2023. Assessing the impact of subsurface geology on groundwater dynamics and tile drainage function. Geological Society of America, *Abstracts with programs*, 55 (6): <https://doi.org/10.1130/abs/2023AM-394910>; Pittsburgh.
- Pierce, S., Arnaud, E., Parker, B., Meyer, J. 2023. Examining scale dependence of hydraulic conductivity in glacial sediments for improving predictions of contaminant plume response to flow system transients. Geological Society of America, *Abstracts with programs*, 55 (6): <https://doi.org/10.1130/abs/2023AM-395200>; Pittsburgh.
- Mugisha Mizero, S., Ali, G., Arnaud, E. 2023. Assessing the resilience of rivers to climate change in the Lake Erie basin. International Association for Great Lakes Research 66th annual conference, Toronto.
- Conway-White, O., Parker, B.L., Steelman, C.M., Ugalde, H., Arnaud, E., Munn, J.D., Pehme, P., Brown, J., and Gorrie, C. 2022. Exploring Bedrock Mechanical Properties and Geomorphology of a Buried Bedrock Valley in Elora, Ontario, Canada Using Surface and Downhole Geophysics. Geological Society of America, *Abstracts with programs*, 54 (5): <https://doi.org/10.1130/abs/2022AM-382079>, Denver.
- Brown, J.**, Arnaud, E., Dix, G., Gorrie, C., Conway-White, O., Steelman, C.M., Parker, B. 2022. Utilizing carbonate facies analysis to conceptualize evolving flow pathways through a buried bedrock valley. Geological Society of America, *Abstracts with programs*, 54 (5): <https://doi.org/10.1130/abs/2022AM-382383>; Denver.
- Shaw, A.**, Arnaud, E. 2022. Deciphering the record of sub-ice conditions at the quaternary sediment–bedrock interface: a case study from southwestern ontario, Canada. Geological Society of America, *Abstracts with programs*, 54 (5): <https://doi.org/10.1130/abs/2022AM-382389>; Denver.
- Finger, E.M., Kennel, J. R. Arnaud, E., Parker, B. L. 2022. Assessing lateral and vertical hydraulic connectivity in a multi-layered carbonate bedrock aquifer using dynamic hydraulic head monitoring. Geological Society of America *Abstracts with programs*, 54 (5): <https://doi.org/10.1130/abs/2022AM-383391> Denver.
- Stockford, A., Kennel, J.R., Arnaud, E., Parker B.L. 2022. The advantages of using high-resolution datasets in groundwater resource investigations: an example in a complex end moraine to wetland setting, Guelph, ON. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Halifax.
- Finger, E.M., Kennel, J. R. Arnaud, E., Parker, B. L. 2022. Assessing lateral and vertical hydraulic connectivity in a multi-layered sedimentary bedrock aquifer using high-resolution, spatial-temporal monitoring in Erin, Ontario. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Halifax.

- Bayley, D., Jacobs, S., Jardine, C., Arnaud, E., Parmley, E. J. (2022). Spatial methods for describing wildlife health in Ontario. Wildlife Disease Association International Conference (Madison, WI, USA).
- Bayley, D., Jacobs, S., Jardine, C., Arnaud, E., Parmley, E. J. (2022). New approaches to describe and measure wildlife health spatially in Ontario. One Health and Development Symposium (Guelph, Ontario, Canada).
- Vig, Z., Meyer, J., Arnaud, E., Parker, B.L., 2021. Using a camsizer to optimize grain size-based hydraulic conductivity estimation for ice-marginal sediments. Geological Society of America *Abstracts with programs*, v. 53, no. 6, <https://doi.org/10.1130/abs/2021AM-369875>. Geological Society of America Annual Meeting, Portland, USA. Oct 10-13, 2021.
- Brown, J.** Corrie, C., Conway-White, O., Steelman, C., Parker, B.L., Arnaud, E. 2021. Hydrogeologic insight from the geology of a buried bedrock valley. Geological Society of America *Abstracts with programs*, v. 53, no. 6, <https://doi.org/10.1130/abs/2021AM-370413> Geological Society of America Annual Meeting, Portland, USA. Oct 10-13, 2021.
- Conway-White, O., Parker, B.L., Steelman, C.M., Smiarowski, A., Ugalde, H., Arnaud, E., Munn, J., **Brown, J.**, Gorrie, C., 2021. Evidence for rock mechanical layers influencing channel morphology in a buried bedrock valley. Geological Society of America *Abstracts with programs*, v. 53, no. 6. <https://doi.org/10.1130/abs/2021AM-370383> Geological Society of America Annual Meeting, Portland, USA. Oct 10-13, 2021.
- Stockford, A., Parker, B.L., Arnaud, E., Kennel, J. 2021. The Advantages of Using High Resolution Datasets in Groundwater Resources Investigation Studies: An Example in a Complex End Moraine to Wetland Setting. GeoNiagara (IAH), September 26-29, 2021. Niagara Falls, Ontario
- Nawrin, N.**, Arnaud, E., Longstaffe, J., Priebe, E., Hamilton, S. 2020. Distribution of Arsenic, Fluoride and Manganese in overburden water wells, southern Ontario, Canada. Geological Society of America annual meeting (online), Montreal.
- Salek, M., Parker, B., Gharabaghi, B., Arnaud, E., Levison, J. 2020. Improvement in understanding fractured bedrock groundwater vulnerability to road salt using high-resolution monitoring approach. GeoConvention, Calgary (virtual).
- Li, Z.**, Arnaud, E., Levison, J., Biswas, A. 2020. Investigating the land conversion impacts on shallow groundwater dynamics in the Great Clay Belt, Northern Ontario. GeoConvention, Calgary (virtual).
- Li, Z.**, Arnaud, E., Levison, J., Biswas, A. 2020. Land conversion impacts on water dynamics in the Highway 11 Corridor, Northern Ontario. 55th Central Canadian Association of Water Quality annual conference, Ryerson, Toronto.
- Stelman, C.M., Smiarowski, A., Conway-White, O., Ugalde, H., Arnaud, E., Endres, T., Parker, B.L. 2019. The Significance of Incised Valleys: using airborne geophysics to understand the role of buried bedrock valleys in regional groundwater flow systems. AGU Fall meeting, San Francisco.
- Conway-White, O., Steelman, C.M., Ugalde, H., Smiarowski, A., Endres, T., Arnaud, E., Parker, B.L. 2019. Delineating the hydrostratigraphy of a buried bedrock valley through airborne and surface geophysical measurements. AGU Fall meeting, San Francisco.
- Jacobson S**, Parker B, Arnaud E, Cherry J, Maldaner C, Chapman S, Annable M, Hatfield K, Bretnall, R. 2019. Combining High Resolution, Depth Discrete Hydraulic and 1,4-Dioxane

- Assessment to Estimate Mass Discharge in a Karst Aquifer, NovCare International Conference, Waterloo, Canada.
- Jacobson S**, Parker B, Arnaud E, Cherry J, Maldaner C, Chapman S, Annable M, Hatfield K, Bretnall, R. 2019 Direct Mass Flux Measurements for 1,4-Dioxane From an Industrial Site in a Karst Aquifer NGWA Conference on Fractured Rock and Groundwater, Burlington Vermont.
- Conway-White, O., Steelman, C.M., Ugalde, H, Smiarowski, A., Arnaud, E., Parker, B.L. 2019. A hydrostratigraphic understanding of buried bedrock valleys: comparing an airborne electromagnetic survey with multiple surface geophysical techniques. SAGEEP 2019, 32nd Annual Symposium on the Application of Geophysics to Engineering and Environmental Problems. Portland, Oregon, USA. Extended abstract. 5pp.
- Stelman, C.M., Smiarowski, A., Conway-White, O., Ugalde, H., Arnaud, E., Parker, B.L. 2019. Enhancing source-water management through airborne electromagnetic imaging of complex aquifer-aquitard sequences. SAGEEP 2019, 32nd Annual Symposium on the Application of Geophysics to Engineering and Environmental Problems, Portland, Oregon, USA. Extended abstract. 5pp.
- Jacobson S**, Parker B, Arnaud E, Maldaner C, Annable M, Chapman S, Cherry J, Hatfield K, Bretnall, R. 2018. High resolution groundwater and contaminant characterization in karst boreholes in central Florida, USA. American Geophysical Union Fall Meeting, Washington DC, United States.
- Morgan C, Meyer J, Runkel A, Arnaud E, Parker B. 2018. Photogrammetry informed fracture network characteristics in a sandstone aquifer for 3-dimensional discrete fracture network simulation. American Geophysical Union Fall Meeting, Washington DC, United States. Accepted.
- Harvey, T.**, Arnaud, E., Parker, B.L., Meyer, J. R., Steelman, C. 2017. Integration of high-resolution datasets for hydrogeologic characterization of contaminated glacial sediments in south Central Wisconsin. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Kingston.
- Arnaud, E., **McGill, M.**, **Trapp, A.**, Smith, J. 2016. Subsurface heterogeneity in ice marginal deposits and its hydrogeological implications. Geological Society of London, William Smith 2016 meeting on glaciated margins. London, UK.
- Meyer, J. R.**, Parker, B. L., Arnaud, E., Runkel, A.C., 2016. Hydraulically calibrated sequence stratigraphy for improved hydrogeologic unit delineation in fractured sedimentary rocks. Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Palm Springs. *Invited*.
- Harvey, T.**, Arnaud, E., Parker, B.L., Meyer, J. R., Steelman, C. 2015. Hydrogeological characterization of complex Quaternary ice marginal sediments at a contaminated site in south Central Wisconsin. Geological Society of America *Abstracts with programs*, Paper 296-12.
- Meyer, J. R.**, Parker, B. L., Arnaud, E., Runkel, A.C., 2015. Role of high-resolution data sets to improve site conceptual model development for a contaminated sedimentary rock site in southern, Wisconsin. Geological Society of America *Abstracts with Programs*. Vol. 47, No. 5, p.8.
- Best, A.**, Arnaud, E., Parker, B. L., Aravena, R., Dunfield, K. 2014. Effects of glacial sediments on the distribution of nitrate and E. coli in groundwater. Geological Society of America

- Abstracts with programs. 46 (6): 814.
- Meyer, J. R.**, Parker, B. L., Arnaud, E., Runkel, A.C., 2014. High Resolution Vertical Gradients For Identifying K_v Contrasts And Delineating Hydrogeologic Units At A Contaminated Sedimentary Rock Field Site. *Geological Society of America Abstracts with programs*. 46 (6): 261.
- Weaver, L. K.**, Arnaud, E., Bolger, B., Abbey, D., Shikaze, S., **Meyer, J. R.**, Parker, B. L. 2013. Evaluation of structural uncertainty in conceptual hydrogeologic model development. International Association of Hydrogeologists, Montreal.
- MacCormack, K. E.**, Arnaud, E. and Parker, B. L. 2013. Using a multi-variogram approach to improve the interpolation model results of the Paris Moraine deposits in Southern Ontario. CANQUA Biennial meeting, Edmonton.
- Weaver, L. K.**, Arnaud, E., Abbey, D., Shikaze, S., **Meyer, J. R.**, Parker, B. L. 2013. Examining the influence of enhanced hydrogeological knowledge on structural uncertainty in three dimensional reconstructions of glacial sediment. *Geological Society of America Abstract with Programs*, 45 (4): 54.
- Best, A.**, Arnaud, E., Parkin, G., Parker, B. L., Aravena, R., Dunfield, K. 2012. Land use practices and non-point source pollution in Quaternary glacial deposits, Guelph, Ontario. *39th International Association of Hydrogeologists Congress Proceedings*, Niagara Falls Canada, Abs. 905.
- Opazo, T., Aravena, R., Parker, B.L., Arnaud, E., **Best, A.** 2012. Nitrate contamination sources of a city production well. *39th International Association of Hydrogeologists Congress Proceedings*, Niagara Falls Canada, Abs. 681.
- Arnaud, E. and **Weaver, L.** 2011. Significance of deformation in hydrogeologic investigations of Quaternary glacial sediments. *GeoHydro 2011 Conference program*, p. 24.
- MacCormack, K. E.**, Slomka, J. M., Arnaud, E., Parker, B. L., Eyles, C. H., **Meyer, J. R.** 2011. Optimizing the impact of localized high-quality data in regional scale subsurface modelling. *Geological Society of America Abstracts with Programs*, 43, 624.
- McGill, M.** and Arnaud, E. 2011. A subsurface investigation of the Paris Moraine in the Guelph area, Ontario. *Ottawa 2011 GAC/MAC Abstracts Volume*, 34, 137.
- Arnaud, E. and Enkin, R. J. 2010. Onset of Late Cenozoic glaciation in the Gulf of Alaska. *Geological Society of America Abstracts with Programs*, 42 (5): 361.
- Weaver, L. K.** and Arnaud, E. 2009. Regional distribution of soft-sediment deformation in surficial sediments of the Waterloo Moraine, Ontario, Canada. 27th IAS meeting of Sedimentologists, Alghero, Sardinia.
- Witmer, J. W., Ridgway, K. D., Brennan, P. R. K., Arnaud, E., and Pavlis, T. 2008. Tectonic Processes along the southeastern margin of Alaska-the Neogene Sedimentary record, Yakataga Formation, St. Elias Mountains. *Eos Trans. AGU* 89 (53), Fall Meet. Suppl., Abstract T53B-1940.
- Arnaud, E. 2008. Cenozoic glaciomarine processes in a complex diamictite unit, Yakataga Formation, Alaska. *Quebec City 2008 GAC/MAC Abstract Volume*, 33: P101
- Weaver, L. K.** and Arnaud, E. 2008. Polyphase glacial deformation in the Waterloo Moraine, Kitchener, Ontario, Canada. *Quebec City 2008 GAC/MAC Abstract Volume*, 33: P156.
- Weaver, L. K.** and Arnaud, E. 2007. Paleoenvironmental analysis of the Grimsby Formation (Lower Silurian) in the subsurface of L. Erie, Ontario. *Yellowknife 2007 GAC/MAC*

Abstract Volume, 32: 86.

- Arnaud, E. and Root, K. J. 2006. Neoproterozoic Windermere Supergroup deposition and rift tectonics, Purcell Mountains, Southeastern British Columbia. *Geological Society of America Abstracts with Programs, 38 (7): 493.*
- Arnaud, E., Russell, H., Bajc, A. 2006. Resolving the origin of stratified moraines in Southern Ontario, Canada. *Geological Society of America Abstracts with Programs, 38 (4), 58.* Invited oral presentation in the Glacial Geology Symposia.
- Arnaud, E. 2005. Deformation in Quaternary glacial deposits of the Waterloo region, Canada. *Geological Society of America Abstracts with Programs, 37 (7): p. 424.* Poster presentation.
- Arnaud, E. 2005. The paleoclimatic significance of diamictite in Neoproterozoic glacial successions. *International Association of Sedimentologists Conference on Glacial Sedimentary Processes and Products, University of Wales, Aberystwyth, 22-27 August 2005.* Oral presentation.
- Snowdon, A.** and Arnaud, E. 2005. Origin of soft sediment deformation features in glacial deposits of the Waterloo Moraine, Ontario, Canada. *International Association of Sedimentologists Conference on Glacial Sedimentary Processes and Products, University of Wales, Aberystwyth, 22-27 August 2005.* Poster presentation.
- Aspden, S. T.** and Arnaud, E. 2005. Sedimentology and deformation styles of upper Pleistocene deposits of the Oak Ridges Moraine, southwestern Ontario, Canada. *GAC-MAC-CSPG-CSSS Joint Meeting, Halifax, Nova Scotia, Abstract Volume 30: p. 6.*
- Arnaud, E. 2004. Deformation in the Neoproterozoic Smalfjord Formation, Varangerfjorden, Northern Norway: an indicator of glacial depositional conditions? *Lake to Lake St. Catharines 2004 GAC/MAC Abstract Volume 28: p. 498.*
- Arnaud, E. 2003. Evidence for glacial and tectonic activity in the Neoproterozoic Smalfjord and Veinesbotn formations, Varangerfjorden, Norway. *Geological Society of America Abstracts with Programs, 35 (6): p. 510.* Poster presentation.
- Arnaud, E. and Eyles, C. H. 2002. Glacially influenced conditions and environmental change in the Neoproterozoic Port Askaig Formation, Scotland: climatic vs tectonic controls. *Abstract. 16th International Sedimentological Congress, Rand Afrikaans University, Johannesburg, South Africa, p. 19.* Oral presentation.
- Arnaud, E. and Eyles, C. H. 2001. Giant cross-bedded sandstones in the Neoproterozoic Port Askaig Formation, Scotland: paleogeographic implications. *Geological Society of America Abstracts with Programs, 33 (6): A75.* Poster presentation.
- Arnaud, E. and Eyles, C. H. 2001. Looking for evidence of a Neoproterozoic 'snowball' in the Port Askaig Formation, Scotland. *GSA/GSL Earth System Processes Programs with Abstracts, p. 124.* Poster presentation.
- Arnaud, E. and Eyles, C. H. 2000. Sediment gravity flow facies in the Neoproterozoic Great Breccia, Port Askaig Formation, Scotland. *Geological Society of America Abstracts with Programs, 32 (7): A81.* Invited. Oral presentation in Clastic Sedimentology session.
- Arnaud, E. and Eyles, C. H. 1999. The sedimentological signature of a Neoproterozoic glaciation: The Smalfjord Formation, Northern Norway. *Geological Society of America Abstracts with Programs, 31 (7): A487.* Poster presentation.
- Arnaud, E. 1998. The sedimentary signature of watershed disturbance, Vancouver Island, British Columbia. *GAC/MAC Abstract Volume 23: A6.* Poster presentation.

Arnaud, E. 1997. The effects of forestry activity on sediment yield and recent lake sediments, Vancouver Island, British Columbia. *Geological Society of America Abstracts with Programs*, 29 (6): A-149. Poster presentation.

Invited non-refereed oral presentations (Student co-authors that I directly supervise shown in bold)

- Arnaud, E. 2025. Using landscape elements in hydrogeological investigations. University of Toledo, Department of Environmental Sciences. Fall 2025 Seminar Series. November 19, 2025.
- Arnaud, E. 2025. Geoscience Education: Crisis or crossroads. Ontario Groundwater Geoscience Open House, February 11, 2025.
- Arnaud, E., 2025. Glaciers, Geology, and groundwater. World Water Day event. University of Guelph. March 21, 2025.
- Nawrin, N.**, Arnaud, E., Priebe, E. 2025. Geospatial analysis of Arsenic and Fluoride in Quaternary aquifers of Southern Ontario. Ontario Groundwater Geoscience Open House, February 13, 2025 (oral-online).
- Shaw, A.**, Best, A., Martin, S., Van Vliet, D., Munn, J., Parker, B., Arnaud, E. 2025. Optimizing groundwater resource management in Guelph, Ontario through Quaternary geological insights. Ontario Groundwater Geoscience Open House 2025. 11th February, 2025. Waterloo (oral)
- Arnaud, E. 2024. Using physiographic elements in hydrogeological investigations. IAH-Waterloo chapter, May 28, 2024
- Li, Z.** and **Trang, C.** 2021. Land conversion impacts on soil and water dynamics in the Highway 11 corridor, Ontario. Northern Ontario Producer Research Day, Northern Ontario Farm Innovation Alliance, February 16, 2021.
- Meyer, J., **Harvey, T.**, Steelman, C.M., Arnaud, E., Parker, B.L. 2021. A multidisciplinary approach to characterizing overlapping heterogeneities controlling a mixed organic contaminants plume in glacial sediments. MGWA Spring 2021 Conference - Groundwater Research: What's New *and* Useful?, Minneapolis, Minnesota.
- Conway-White, O.**, Steelman, C.M., Ugalde, H., Smiarowski, A., Gorrie, C., Endres, T., Arnaud, E., Parker, B.L. 2020. Integration of Frequency-Domain Airborne Electromagnetics, Surface Geophysics and High-Resolution Boreholes to Support Groundwater Resource Assessments. Regional-Scale Groundwater Geoscience in Southern Ontario Open House. 19-20th February, 2020. Waterloo.
- Arnaud E., 2016. Groundwater vulnerability to *E. coli* from manure-how deep is deep enough? Canada Centre for inland Waters Environment and Climate Change Canada seminar. June 16, 2016.
- Parker, B. L. and Arnaud, E. 2016. Integration of golden spike geologic and hydrogeological data sets. Regional Scale Groundwater Geoscience in Southern Ontario. Ontario Geological Survey and Geological Survey of Canada Geoscience Open House. March 10, 2016, Guelph.
- Arnaud, E., 2015. Transport of *Escherichia coli* through a thick vadose zone and the role of geology in affecting the fate of contaminants. International Association of hydrogeologists (Canadian Chapter) Seminar. December 9, 2015.
- Arnaud, E. 2014. The role of Quaternary geology in sustainable bedrock water supplies. ORF-RE Annual Progress meeting, University of Guelph.

- Arnaud, E., 2013. The nature of geological conceptual models in hydrogeology. University Consortium for Field Focused Groundwater Contamination Research Program. Annual Progress Meeting, May 29-31, 2013, The Arboretum, University of Guelph.
- Arnaud, E. and **McGill, M.** 2013. Quaternary Geology of the Paris Moraine and its hydrogeologic function. ORF-RE Annual Progress meeting, University of Guelph.
- Arnaud, E. 2013. Deformation and the record of glaciation in Neoproterozoic successions. Department of Earth Sciences Seminar Series, University of Waterloo.
- Arnaud, E. 2012. Quaternary Geology and Contaminant Hydrogeology. ORF-RE Scientific Advisory Committee meeting, University of Guelph.
- Arnaud, E. 2012. Glaciers and Groundwater. School of Environmental Sciences Seminar Series, University of Guelph.
- Arnaud, E. 2011. Overburden heterogeneity in the Guelph region. ORF-RE Annual Progress meeting, University of Guelph.
- Arnaud, E. 2010. The legacy of glaciation for groundwater resource management. Site 41 Symposium. Centre for Environment and Sustainability, University of Western Ontario.
- Arnaud, E. 2010. Characterization of Quaternary Overburden. ORF-RE Scientific kick-off meeting, University of Guelph.
- Arnaud, E. 2010. Quaternary Geology and Groundwater. Bedrock Aquifer Field Facility Inauguration, University of Guelph.
- Arnaud, E., 2008. Glaciomarine settings. Basin Analysis Group, Purdue University
- Arnaud, E. 2006. The odd one out: The Port Askaig Formation and the snowball Earth hypothesis. Dept. of Geography Graduate Student Speaker Series, Univ. of Guelph.
- Arnaud, E. 2004. Looking for evidence of snowball Earth events in Neoproterozoic glacial deposits. Department of Geology Lecture Series, Utah State University, USA.
- Arnaud, E. 2003. Climatic vs. tectonic controls on sedimentation: The Neoproterozoic Port Askaig Formation and the Late Cenozoic Yakataga Formation. The interplay of collisional tectonics and Late Cenozoic glacial climate in Alaska and the NE Pacific Ocean, a Continental Dynamics/NSF and JOI/USSP sponsored workshop, Austin, Texas.
- Arnaud, E. 2003. The snowball Earth hypothesis and the sedimentary record of past climate change. Dept. of Earth Sciences Seminar Series, University of Waterloo.
- Arnaud, E. 2001. The sedimentology of the Port Askaig Formation. Snowball Earth Workshop. Earth System Processes Conference, Edinburgh, Scotland.
- Arnaud, E. 2001. Icehouse to hot house in 10 million years: Challenging the snowball Earth hypothesis. School of Geography and Geology Seminar Series, McMaster University.
- Eyles, C. H. and Arnaud, E. 2001. Searching for Neoproterozoic snowballs in Scotland and Australia. Dept. of Earth Sciences Seminar Series. The University of Western Ontario.
- Arnaud, E. 2000. Glacial influence on Neoproterozoic sedimentation, the Smalfjord Formation, northern Norway. School of Earth Sciences and Geography, Keele University, UK.

Scholarship of Teaching and Learning Presentations

- Arnaud E. 2021 The effectiveness of IDPs-Graduate Student perspectives. American Association of Universities, Association of Graduate Schools Annual Meeting, Sept 28, 2021. Supporting Graduate Student Career Pathways panel session. Invited.
- Cahill, S. and Arnaud, E. 2020. The effectiveness of Individual Development Plan (IDP). Graduate Student Perspectives. OGPS Graduate Coordinator's Workshop, Oct 2020

- (oral).
- Cahill, S. and Arnaud, E., 2020. Understanding graduate student's perceptions of the Individual Development Plan. Inquire Program Scholarship of Teaching and Learning Showcase, Guelph, June 2020 (oral)
- Cahill, S., Arnaud, E., Timperio, N., Bolton K., 2019. Graduate student's perceptions of IDP effectiveness in a course-based master's program. Graduate Professional Development Network conference, Halifax, November 2019 (oral)
- Cahill, S., Arnaud, E., Timperio, N., Bolton K., 2019. Grad School and Beyond: How to support student productivity and Success. CSHAS Hub for Teaching and Learning Excellence, Oct 3rd, 2019. (oral)
- Cahill, S., Arnaud, E., Bolton K., Timperio, N. 2019. Graduate Student Reflection using Individual Development Plans (IDPs). Teaching and Learning Innovations Conference, University of Guelph (poster).
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