Dr. Scott Melnyk

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Education

Ph.D. in Earth and Atmospheric Sciences, University of Alberta, 01/2018 – 12/2023
Thesis: Investigating the occurrence and intensity of bioturbation in tidal sedimentary environments
Advisor: Dr. Murray K. Gingras

B.Sc. in Earth and Atmospheric Sciences, University of Alberta, 08/2012 – 12/2017
Thesis: Sedimentology and stratigraphy of the Cretaceous Clearwater Formation, Alberta, Canada
Advisor: Dr. Murray K. Gingras

Employment

Postdoctoral Research Associate, University of Utah, Salt Lake City, United States, 03/2024 – present

Graduate Teaching/Research Assistant, University of Alberta, Edmonton, Canada, 05/2018 – 12/2023

Principal Instructor, University of Alberta, Edmonton, Canada, 01/2023 – 04/2023

Sessional Instructor, MacEwan University, Edmonton, Canada, 01/2022 – 04/2023

Geology Summer Student, APEX Geoscience, Nunavut, Canada, 05/2017 – 08/2017

Peer-Reviewed Publications

Link to Google Scholar

In revision or review:

3. **Melnyk, S.**, Lazowski, C.N., Dashtgard, S.E. and Gingras, M.K. Topographic controls on the distribution of bioturbation in an intertidal sandflat. *Sedimentology* [in revision].

2. **Melnyk, S.**, Coutret, B., Brown, D., Zonneveld, J-P., Kavanaugh, J.L. and Gingras, M.K. Assessing Vertical Bioturbation Intensity from Bedding Planes. In Bedding Surfaces: True Substrates and Earth Historical Archives (eds. Davies, N.S. and Shillito, A.P.). *Geological Society of London Special Publication* [in review].

1. Lazowski, C.N., **Melnyk, S.**, Gutierrez Rueda, D., Wang, J., Tarhan, L., Hauck, T., Alessi, D., Konhauser, K.O., and Gingras, M.K. Wind-blown lithium deposits in the Western Canada Sedimentary Basin. *GSA Bulletin* [in review].

Published or in press:

10. Zonneveld, J-P., Britt, B., Brown, D., Corlett, H., Gingras, M.K., Kuwae, T., **Melnyk, S.**, Naone, S. and Zonneveld, Z. (in press) Biogenic structures produced by foraging shorebirds and waterbirds in

marginal marine and marginal lacustrine settings: implications for the rock record. *Journal of Paleontology* [in press].

9. Harris, B.S., Olariu, C., **Melnyk, S**., LaGrange, M.T., Konhauser, K.O., Gingras, M.K. (in press) New ichnogenus *Aratichnus*, Àger, Lleida, Spain. *Ichnos*.

8. Hao, W., Swaren, L., Baker, D., **Melnyk, S.**, Owttrim, G.W., Hongbo, Z., Gingras, M.K., Alessi D.S. & Konhauser, K.O. (2023) The impact of aggregation between clay and phytoplanktonic cyanobacteria on trace elemental cycling in coastal environments. *Geochimica et Cosmochimica Acta* 360, 68-80. https://doi.org/10.1016/j.gca.2023.09.010

7. **Melnyk, S.**, Lazowski, C.N. & Gingras, M.K. (2022) The sedimentological and ecological significance of an unusual biodeformational structure related to a feeding behavior in gulls (*Larus* sp.). *Ichnos*, 29(2), 84-92. https://doi.org/10.1080/10420940.2022.2067535

6. **Melnyk, S.**, Cowper, A., Zonneveld, J-P. & Gingras, M.K. (2022) Applications of photogrammetry to neoichnological studies: The significance of shorebird trackway distributions at the Bay of Fundy. *Palaios*, 37(10), 606-621. https://doi.org/10.2110/palo.2021.055

5. Chen, Q., Shchepetkina, A., **Melnyk, S.** & Gingras, M.K. (2022) Integrating Facies Analysis with Dipmeter Data to Characterize Point Bars of the Lower Cretaceous McMurray Formation, Christina River, AB, Canada. *Marine and Petroleum Geology*, 136, 105449. https://doi.org/10.1016/j.marpetgeo.2021.105449

4. Feng, C., **Melnyk, S.**, Ross, C., Shanley, K., Zonneveld, J-P. & Gingras, M.K. (2021) Lithofacies-dependent pore-throat radii and reservoir properties in the Lower Triassic Montney Formation, Puskwaskau Field, Alberta. *Marine and Petroleum Geology*, 131, 105157. https://doi.org/10.1016/j.marpetgeo.2021.105157

3. Swaren, L., Hao, W., **Melnyk, S.**, Baker, D., Li, Y., Owttrim, G. W., Hongbo, Z., Gingras, M.K., Alessi, D.S. & Konhauser, K.O. (2021) Surface reactivity of the cyanobacterium *Synechocystis* sp. PCC 6803–Implications for trace metals transport to the oceans. *Chemical Geology*, 562, 120045. https://doi.org/10.1016/j.chemgeo.2020.120045

2. **Melnyk, S.**, Packer, S., Zonneveld, J-P. & Gingras, M.K. (2021) A new marine woodground ichnotaxon from the Lower Cretaceous Mannville Group, Saskatchewan, Canada. *Journal of Paleontology*, 95(1), 162-169. https://doi.org/10.1017/jpa.2020.63

1. **Melnyk, S.** & Gingras, M.K. (2020) Using ichnological relationships to interpret heterolithic fabrics in fluvio-tidal settings. *Sedimentology*, 67(2), 1069-1083. https://doi.org/10.1111/sed.12674

Conference Presentations

6. **Melnyk, S.**, Lazowski, C.N. & Gingras, M.K. (2023) Burrow Distributions in an Active Intertidal Dune Field in White Rock, British Columbia, Canada. *International Association of Sedimentologists (IAS) Annual Meeting of Sedimentology*, *Dubrovnik, Croatia* [oral presentation].

5. **Melnyk, S.**, Lazowski, C.N. & Gingras, M.K. (2023) Factors Influencing the Distribution of Endobenthic Animals in Intertidal Environments. *ATLAS Research Symposium, Edmonton, Canada* [oral presentation].

4. **Melnyk, S.**, Zonneveld, J-P. & Gingras, M.K. (2020) Compound Dune Distributions in the Intertidal Zone of the Bay of Fundy, Nova Scotia. *Shell Enhanced Learning Symposium, Edmonton, Canada* [poster presentation].

3. **Melnyk, S.** & Gingras, M.K. (2019) Interpreting Heterolithic Fabrics Using Ichnological Relationships: Case Study from the McMurray Formation, Alberta, Canada. *American Association of Petroleum Geologists (AAPG) Annual Convention and Exhibition, San Antonio, United States* [oral presentation].

2. **Melnyk, S.** & Gingras, M.K. (2018) Facies Analysis and Stratigraphic Framework of the McMurray Formation in Township 98, Range 8W4. *McMurray Geology Consortium Annual Meeting, Calgary, Canada* [poster presentation].

1. **Melnyk, S.**, Prenoslo, D. & Gingras, M.K. (2017) Sedimentology, Ichnology, and Stratigraphy of the Cretaceous Clearwater Formation. *ATLAS Undergraduate Research Symposium*, *Edmonton, Canada* [poster presentation].

Teaching Experience

Lectures – principal or sessional instructor *(n = 3):*
Sedimentology and Stratigraphy, MacEwan University, Winter 2023
Geology of Western Canada (online), University of Alberta, Winter 2023
Introduction to Physical Science, MacEwan University, Fall 2022

Field courses – teaching assistant *(n = 5):*
Geology Field School, University of Alberta, Fall 2022
Geology Field Techniques, University of Alberta/Nanjing University, Summer 2021
Geology Field School, University of Alberta, Spring 2021
Geology Field School, University of Alberta, Spring 2019
Geology Field School, University of Alberta, Spring 2018

Laboratory sessions – teaching assistant or sessional instructor *(n = 12):*
Sedimentology and Stratigraphy, MacEwan University, Winter 2023
Introduction to Physical Science, MacEwan University, Spring 2022
Introduction to Physical Science (online), MacEwan University, Winter 2022
Introduction to Environmental Earth Science (online), MacEwan University, Winter 2022
Advanced Sedimentology (online), University of Alberta, Winter 2022
Advanced Geobiology (online), University of Alberta, Winter 2022
Sedimentary Systems, University of Alberta, Fall 2021
Advanced Sedimentology, University of Alberta, Winter 2021
Advanced Sedimentology (hybrid), University of Alberta, Winter 2020
Advanced Sedimentology, University of Alberta, Winter 2019
Engineering Earth Science, University of Alberta, Fall 2018
Engineering Earth Science, University of Alberta, Fall 2018

Laboratory coordination – teaching assistant *(n = 1):*
Engineering Earth Science (9 labs), University of Alberta, Fall 2023

Supervisorial Experience

Undergraduate Thesis Mentor:
A. Cowper: Sedimentology of the Cretaceous McMurray Formation, University of Alberta, 2019-2020
C. Shan: Geochemical Analysis of Cambrian Trace Fossils, University of Alberta, 2018-2019

Grants and Scholarships

External ($2,925 CAD):
SEPM Student Travel Grant, 2023 ($425)
CSPG Regional Graduate Scholarship in Geology, 2021 ($2,500)

Internal, University of Alberta ($41,600 CAD):
Evelyn Wigham (nee Linke) PhD Scholarship in Geology, 2023 ($1,500)
CAPP Graduate Scholarship in Geology, 2023 ($5,000)
University of Alberta FGSR Graduate Student Travel Grant, 2023 ($1,500)
University of Alberta GSA Academic Travel Grant, 2023 ($500)
CAPP Graduate Scholarship in Geology, 2022 ($5,000)
Evelyn Wigham (nee Linke) PhD Scholarship in Geology, 2022 ($1,500)
CAPP Graduate Scholarship in Geology, 2021 ($5,000)
Alberta Graduate Excellence Scholarship, 2020 ($12,000)
Evelyn Wigham (nee Linke) PhD Scholarship in Geology, 2020 ($1,400)
Alberta Graduate Excellence Scholarship, 2019 ($12,000)
CAPP Graduate Scholarship in Geology, 2019 ($5,000)
APEGA Fund in Geology and Geophysics, 2016 ($1,000)
Jason Lang Scholarship, 2016 ($1,000)
Bill Elder Scholarship in Geology, 2016 ($2,100)
Jimmy Marshall Scholarship in Science, 2016 ($500)

Internal, MacEwan University ($2,000 CAD):
Jason Lang Scholarship, 2014 ($1,000)
Jason Lang Scholarship, 2013 ($1,000)

Professional Development

Graduate Teaching and Learning Program Level 2: Practicum (02/2022): Hybrid workshop at the University of Alberta consisting of 17 hours of instruction in addition to the development of a lesson plan, teaching philosophy, preliminary e-portfolio, teaching development plan, and the design and delivery of two microteaching presentations.

Graduate Teaching and Learning Program Level 1: Foundations (01/2022): 23-hour University of Alberta workshop with seminars including: mapping learning objectives and outcomes; the art of lesson planning; fundamentals of evaluation and assessment; supporting an environment for student motivation; circular communication in the classroom; the policy and practices of classroom inclusion; teaching presentation skills; ethical principles in teaching; effective teaching in the lab; indigenizing and decolonizing the academy.

Service and Leadership

EAS Mentor, University of Alberta (09/2021 – 04/2023): Met regularly with undergraduate students enrolled in the Earth and Atmospheric Sciences mentorship program. Provided guidance and facilitated discussions about academics, careers, and life as a geoscientist.

Webmaster, Ichnology Research Group (08/2019 – 04/2023): Built, designed, and maintained the research group website during my graduate studies: https://cms.eas.ualberta.ca/ichnology.

Vice President External, AAPG University of Alberta Student Chapter (09/2020 – 08/2022): Coordinated fundraising activities and acted as the liaison between the chapter and its sponsors.

Field Trip Leader, AAPG University of Alberta Student Chapter (09/2019): Raised funding for and organized a 9-day field seminar with 17 participants. Focused on the sedimentology and ichnology of the Bay of Fundy, Canada. Co-led by Dr. Murray Gingras and Dr. John-Paul Zonneveld.

Field Trip Co-Leader, Geobiology Society Conference, Banff, Canada (09/2019): Organized a 1-day field seminar with 24 participants. Focused on Cambrian trace fossils and their significance in understanding early animal evolution. Led by Dr. Murray Gingras and co-led by Dr. Maya LaGrange.

Science Olympics Judge, Association of Professional Engineers and Geoscientists in Alberta (04/2017 – 04/2020): Tested, organized, supervised, and judged science competitions for K-12 students.

Editorial Service

Editorial Assistant, *Journal of South American Earth Sciences* (04/2023).

Peer Reviewer, *Sedimentology* (06/2021).

Outreach

Interviewee, *The Griff* (01/2023) What a Geologist wants: https://thegriff.ca/what-a-geologist-wants/

Interviewee, *The Gateway* (01/2021) U of A Graduate Student's Trace Fossil Find Leads to Naming of New Marine Animal: https://thegatewayonline.ca/2021/01/u-of-a-graduate-students-trace-fossil-find-leads-to-naming-of-new-marine-animal/

Interviewee, *University of Alberta Faculty of Science* (08/2020). Graduate student names new trace fossil discovered during coursework: https://www.ualberta.ca/science/news/2020/august/marine-trace-fossil.html/