

MSc Opportunity in Earth and Atmospheric Sciences

The Department of Earth and Atmospheric Sciences at Western University (London, ON, Canada) is looking for a domestic MSc student interested in a multidisciplinary project in the fields of *clastic sedimentology*, *ichnology*, *paleoclimatology*, and *paleoceanography* to begin their degree in summer/ autumn 2024. Interested students are encouraged to send a CV, unofficial transcript, and statement of research interests to Dr. Alina Shchepetkina (ashchep@uwo.ca).

Ranked in the top 1% of universities **worldwide** and top 3 universities in Canada for student services, **Western** combines research excellence and student experience to create impact locally and globally. The Department of Earth Sciences is a close-knit and dynamic department combining cutting edge academic and applied research with strong mentorship and teaching at both the graduate and undergraduate level. The department is committed to building diverse and inclusive research groups, and students from historically underrepresented groups in Science, Technology, Engineering and Mathematics (STEM) and non-traditional backgrounds are highly encouraged to apply.

Project: Unraveling climate change through deep-sea trace fossil analysis

This project is part of a multidisciplinary scientific ocean drilling experiment “The South Atlantic Transect (SAT)” that investigates the evolution of the sediments across the western flank of the Mid-Atlantic Ridge. This research will include ichnological (trace fossil) work on deep-sea cores collected during International Ocean Discovery Program Expeditions 390&393 and currently kept at the IODP Bremen Core Repository (Germany). The cores must be processed on-site, including detailed ichnological core description, X-ray computed tomography (CT), and high-resolution image treatment of CT scans. CT scanning is a relatively new technique in ichnofossil analysis, which yields high-resolution data and helps establish the 3-D nature of complex ichnofossil assemblages, especially in deep-sea sediments. It also permits non-destructive and superior identification of individual trace fossils, their morphology, infill, tiering relationships, and preservation potential, thus enhancing environmental interpretations and contributing to more accurate climate modeling. Other project data are readily available through the online LIMS database, including descriptions of smear slides, XRF data, high-resolution core photographs, magnetic susceptibility and paleomagnetic measurements, geochemical, and micropaleontological data. In oceanic settings, combined ichnological and sedimentological analyses help provide new and enhance previous palaeoceanographic interpretations.