



MSc or PhD in Earth sciences – hydrogeology

Groundwater Geochemistry across the Montréal Metropolitan Community Area

Since 2009, the PACES program (Groundwater Knowledge Acquisition Projects – Programme d'acquisition de connaissance sur les eaux souterraines) has supported the characterization of groundwater resources, including recharge and quality, across much of Quebec's municipalized territory. Despite hosting nearly half of Quebec's population, the Greater Montréal region had not previously been the focus of a PACES initiative, as drinking water supply there largely comes from surface water. This mapping, funded by ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP), provides crucial information for improved management of water resources and land use.

Numerous datasets on groundwater geochemistry and water quality are available for the Greater Montréal area, but they remain spatially incomplete and have not been examined at a regional scale. However, this scale of analysis is essential for determining regional groundwater flow patterns and for identifying the occurrence of specific contaminants, especially those related to urban, industrial, and agricultural activities.

The aim of this master's or doctoral project is to provide a comprehensive overview of groundwater quality in the Greater Montréal region. The specific objectives are: 1) to synthesize existing groundwater quality data and carry out a targeted sampling campaign to address data gaps, 2) to identify groundwater facies and determine the key factors controlling groundwater quality, and 3) to produce a regional-scale map of groundwater quality.

Requirements: Bachelor's or Master's degree in geology or a related field, completed by April 30, 2026

Competitive scholarship, commensurate with the level of study

Program duration: two (MSc) or four (PhD) years, beginning in May 2026

Host institution: Université du Québec à Montréal (UQAM), Montréal, Canada

Research supervisors: Pr Violaine Ponsin, hydrogeochemist (ponsin.violaine@uqam.ca), and Pr Marie Larocque, groundwater specialist (larocque.marie@uqam.ca), in collaboration with Pr Daniele Pinti, groundwater dating specialist (pinti.daniele@uqam.ca), and Emmanuel Dubois, groundwater specialist (dubois.emmanuel@uqam.ca), from the Department of Earth and Atmospheric Sciences, Université du Québec à Montréal (UQAM). The project will be conducted within the Research Chair on Water and Land Conservation (chaire-eau.uqam.ca).

Applications should be submitted by email to Violaine Ponsin by January 31, 2026, and must include: 1) a statement of interest, 2) a detailed curriculum vitae, 3) a recent academic transcript, and 4) the names of two academic referees.