The focus of the Earth Surface Processes group is on earth and environmental processes. Graduate research areas include climatology, hydrology and surficial geoscience including geoarchaeology, geophysics, glacial sedimentology and sequence stratigraphy. Emphasis is placed on understanding the impacts of human activities on the physical environment, including changes in climate, land-use and surface and groundwater quality. Environmental interactions are also studied through interdisciplinary analysis of the archaeological record and through paleoenvironmental reconstruction of past climates and landscapes.

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- Hydrometeorology; Biometeorology; Climatology
- Forest carbon and water cycles;
- Evapotranspiration; Ecosystem and Land surface-atmosphere interaction models;
- Global climate models;
- Air pollution; Environment and health

Janok Bhattacharya, Professor, Email: bhattaj@mcmaster.ca
- Sequence stratigraphy
- 3D facies architecture of shallow marine
- Paralic, and fluvial depositional systems

Joseph I. Boyce, Associate Professor, Email: bocej@mcmaster.ca
- Near-surface geophysics (magnetics, GPR, shallow seismic profiling) as applied to environmental site characterization, groundwater studies and archaeology
- Environmental magnetism, magnetic methods in paleoenvironmental reconstruction
- Neotectonics and the paleoseismic record of lake basins

Carolyn H. Eyles, Professor, Email: eylesc@mcmaster.ca
- Tectonic versus climatic controls on sedimentation in glaciated basins.
- Glaciomarine sedimentology: understanding processes, facies geometries, sedimentary successions in glacially-influenced marine environments.
- Environmental geology: geologic history and 3-D subsurface distribution of sediment types in glaciated basins; subsurface aquifer characterization.

Edward G. Reinhardt, Professor, Email: ereinhar@mcmaster.ca
- Geoarchaeology, and Marine Archaeology
- Micropaleontology (foraminifera)
- Isotope Geochemistry
- Paleoenvironmental Analysis
- Catastrophic Event Stratigraphy
- Quaternary Geology

James E. Smith, Professor, Email: smithja@mcmaster.ca
- Water flow and contaminant transport in the subsurface
- Vadose zone hydrology
- Soil water physics
- Hydrogeology;
- Multiphase flow through porous media
- Nonaqueous Phase Liquid (NAPL) Behaviour and Remediation in the Subsurface
- Organic Contaminants in Groundwater Systems
- Soil Sciences
- Applied Modelling of Subsurface Flow and Transport.

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