

## **Modeling Surface and Subsurface Nitrogen Transport in an Agricultural Watershed: Subsurface modeling using DRAINMOD 5.1**

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Agricultural non-point source (NPS) pollution is considered as one of the major threats to water quality in many parts of the world. Although NPS originates at the field scale, usually water quality problems become more noticeable at the watershed scale. In Canada, several rivers, draining agricultural land, have elevated nitrate, phosphorous and pesticide concentrations. This research project is designed to improve our understanding of the processes contributing to NPS pollution from agricultural activities on a watershed scale in colder climates. An integrated approach is taken to model surface and subsurface nitrogen transport by developing a new model, using DRAINMOD 5.1 and WARMF models. The model will be evaluated for the St. Esprit Watershed, located northeast of Montreal. In this paper, the results of flow and nitrogen simulation in subsurface flow using DRAINMOD 5.1 model will be presented.