Introduction
One consequence of global warming already being felt in northern Quebec is permafrost thaw. Although its influence on groundwater resources is still largely unknown, it will probably lead to increased groundwater recharge and changing flow dynamics (Michel & Van Everdingen, 1994; Quinton & Baltzer 2013).

The Immatsiak well network, located close to the Inuit village of Umiujaq and belonging to the Quebec Ministry of Environment (MDDELCC), was used to sample groundwater. Surface water, precipitation and permafrost samples were collected during four field campaigns in the summers 2013, 2014, 2015 and in November 2014.

The investigated parameters are listed below:
- Dissolved metals
- Major anions
- δ18O and δD
- DIC, DOC, POC and their δ13C
- 14C (DIC) and 3H/3He
- Noble gas

First results from water δ18O and δD:
- Groundwater depletion compared to rain
- Permafrost signature is similar to groundwater
- Shallow thermokarst lakes show an enrichment resulting from evaporation

Conclusions
Key points from this preliminary hydrogeochemical study:
- The permafrost seems to be influenced by modern waters (groundwater and precipitation), being not as depleted in δ18O and δD as we had originally thought.
- Low TDS in groundwater (max 150 mg/l at site 3).
- Groundwater is influencing the stream chemical composition, with seasonal variations.

Further analysis of water and carbon isotopes, age dating, determination of the local meteoric water line for δ18O and δD and data treatment are needed to confirm these results and present a global picture of groundwater dynamics in this discontinuous permafrost zone affected by degradation.

References
- Quinton, W. L., & Baltzer, J. L. 2013. The active-layer hydrology of a peat plateau with thawing permafrost (Scotty Creek, Canada). Hydrogeology Journal, 21, 201–220.