

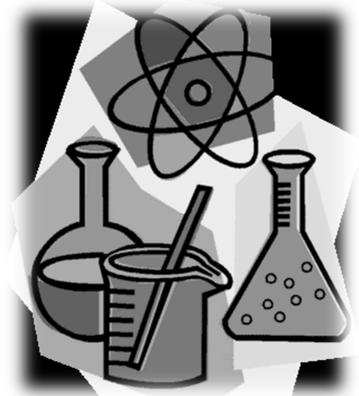


AMGC Seminars

September – December 2015

The seminars will be held on the 7th floor (G building)

ALL WELCOME



Tuesday 15 September 2015 – 4 PM (followed by drinks)

Daniele L. Pinti, GEOTOP research center for geochemistry and geodynamics – **Anthropogenic and crustal fluxes of methane constrained from groundwater data in shale gas exploration areas of Quebec, Canada**

Thursday 24 September 2015 – 10 AM

Sebastiaan van de Velde – **Influence of bioturbation on iron cycling: a modelling approach**
Steven Goderis – **(Micro)meteorites from Antarctica**

Thursday 8 October 2015 – 11 AM (followed by Pizza Lunch)

David Verstraeten – **Lab visit 7th & 8th floors**

Tuesday 20 October 2015 – 10 AM

Natacha Brion – **Past and present carbon dynamics in the Scheldt estuary as traced by changes in C speciation and isotopes– 1995-2014**
François Fripiat – **Antarctic Sea Ice nutrients: decoupling between Nitrogen and Phosphorus**

Tuesday 3 November 2015 – 4 PM (followed by drinks)

Frank Dehairs – **Understanding the nitrogen and carbon cycling in the ocean: use of stable isotope tools**

Thursday 19 November 2015 – 10 AM

Kim Croes – **Human biomonitoring**
Stef Vansteenberge – **Eemian to Early-Weichselian Millennial-scale Climate Variability: insights from a speleothem record from the Han-sur-Lesse cave, Belgium**

Thursday 3 December 2015 – 4 PM (followed by drinks)

Philippe Claeys – **AMGC in the future**

Thursday 17 December 2015 – 11 AM (Followed by a small Winter Celebration)

Kersten Van Langenhove – **Endocrine activity in the Zenne River, WWTP, and Hospital effluent**
Matthias Sinneseal – **Understanding rapid climate variations during the Late Ordovician (~450 Ma) in terms of astronomical forcing**

Anthropogenic and crustal fluxes of methane constrained from groundwater data in shale gas exploration areas of Quebec, Canada

Daniele L. Pinti

GEOTOP research center for geochemistry and geodynamics
Département des Sciences de la Terre et de l'Atmosphère, Université du Québec à Montréal, Canada

Tuesday 15 September 2015 – 4 PM

Abstract

The increasing number of studies on the determination of natural methane in groundwater in shale gas areas offers a unique opportunity for refining the quantification of geological methane emissions. Here methane fluxes computed from four potential sources in the St. Lawrence Lowlands, Quebec (Canada) are reported. Methane emissions can be caused by 1) groundwater degassing by human abstraction; 2) groundwater discharge along springs or rivers; 3) migration to the surface by microseepage. In areas where shale gas is extracted by hydraulic fracturing methane emissions can be related also to 4) the degassing of the flowback waters during recovery. Methane fluxes related to groundwater discharge surpass those of microseepage and human abstraction. Exploitation of the Utica shale over a 10- to 20-year horizon would emit from one third to 45 times the methane flux from groundwater discharge. Finally, using calibration against crustal helium fluxes, it is estimated that a maximum global microseepage methane flux of 2 Tg yr⁻¹ seeps from all exploited or prospective shale gas areas around the world. This flux is one tenth of that previously estimated in literature (10-25 Tg yr⁻¹) based on field methane flux measurements over oil and gas provinces.