

3rd International Conference on Earth Science & Climate Change

July 28-30, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

Atmospheric mercury in the oil sands region

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Environment Canada first measured Total Gaseous Mercury (TGM) in Fort Chipewyan, Alberta, downstream of the Canadian oil sands region, from June 2000 - July 2001. This monitoring was initiated in part because mercury had been detected in fish and water in the area and there was no information on atmospheric concentrations of mercury.

Since 2001, the interest and concern over mercury levels in the region has continued to rise with the rapid development of the oil sands industry. The detection of mercury in snow, water and bird eggs in the oil sands region has raised questions from Aboriginal Groups about the potential mercury contamination of water, fish and wildlife and the risk to human health.

Environment Canada resumed monitoring of TGM in 2010 in Fort McMurray, Alberta, the urban hub of the Canadian oil sands region. Monitoring has since expanded to air quality monitoring sites closer to industry with a second TGM in 2012 and a speciated mercury system in 2013. Environment Canada continues to monitor mercury at these 3 sites under the Canada-Alberta Joint Oil Sands Monitoring Plan.

This mercury monitoring will help determine if increasing development is increasing atmospheric mercury concentrations in the region, and inform and contribute to related mercury studies on wildlife health, biodiversity and water.

The presentation will provide an overview of the past and present monitoring sites, the data collected from 2010-2013 and a summary of analyses completed.

Biography

Daniel McLennan completed his BSc. with a Specialization in Atmospheric Science from the University of Alberta. He is an air quality scientist in the Environment Canada's Prairie and Northern Region Air Quality Science Unit (PNR-AQSU) and in charge of the QA/QC of PNR-AQSU ambient mercury oil sands data. He co-authored a recently published paper on TGM concentration measurements in the oil sands.

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