OMICS International
conferenceseries.com **SciTechnol**

3rd International Conference on
Earth Science & Climate Change

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

The influences of a local coal-fired power plant on downwind ambient mercury concentrations

Jiaoyan Huang[1], Thomas M Holsen[3], Yungang Wang[2] and **Philip K Hopke[3]**
[1]University of Nevada, USA
[2]Lawrence Berkeley National Laboratory, USA
[3]Clarkson University, USA

Recently the United States Environmental Protection Agency proposed new regulations for Hg emissions from coal-fired power plants (CFPP). A mercury (Hg) speciation system was applied in Rochester, New York (2007-2009) and a local CFPP was shut down in spring 2008. The median concentrations of GEM, GOM, and PBM significantly decreased by 12%, 73%, and 50% after the CFPP closed (Mann-Whitney test, $p<0.001$). Both Principal Component Analysis (PCA) and Positive Matrix Factorization (EPA PMFv4.1) identified four common factors including traffic, gas phase oxidation, wood combustion, and CFPP. However, PCA and PMF also found snow melting and O3-rich are important to gaseous elemental Hg. Conditional probability function (CPF) analysis showed the greatest reduction in all three Hg species was associated with northwesterly winds pointing toward the CFPP. These changes were clearly attributable to the closure of the CFPP. Furthermore, the partitioning coefficient significantly changed after the local CFPP closure, and this implies that the local CFPP had significant influence on both ambient air Hg concentrations and the species of reactive Hg.

Biography

Jiaoyan Huang is an atmospheric pollution scientist at the University Nevada, Reno, has conducted ambient air monitoring, dispersion, and receptor modeling for dioxin, mercury, aerosol, and other trace gaseous at multiple sites, and has developed new methods of ambient air Hg dry deposition and concentrations measurements. He earned his PhD degree in the Civil and Environmental Engineering at Clarkson University.

huangj1311@gmail.com

Expert Opin Environ Biol 2014
ISSN: 2325-9655, EOEB Hybrid Open Access

Earth Science-2014
July 28-30, 2014

Volume 3, Issue 2

Page 105