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Method Article

Method for mapping Hg^0 emissions from gold shops in artisanal and small-scale gold mining communities

Samantha T. Brown[a], Kazi M. Hasan[a], Keegan H. Moody[a], Danielle C. Loving[a], Kathryn E. Howe[a], Alaina G. Dawson[a], Kevin Drace[b], Jeffrey D. Hugdahl[a], Caryn S. Seney[a], Claudia M. Vega[c,d], Luis E. Fernandez[c,d], Adam M. Kiefer[a,*]

[a] Department of Chemistry, Mercer University Macon, GA, United States
[b] Department of Biology, Birmingham-Southern College Birmingham, AL, United States
[c] Centro de Innovación Científica Amazónica (CINCIA), Puerto Maldonado 17000, Madre de Dios, Peru
[d] Center for Energy, Environmental and Sustainability (CEES), Wake Forest University, Winston-Salem 27109, NC, United States

A B S T R A C T

Gold shops in artisanal and small-scale gold mining communities represent major point sources of airborne mercury pollution. Concentrations of elemental mercury (Hg^0) emitted by these shops can be determined using a portable atomic absorbance spectrometer (AAS) with Zeeman correction. These measured Hg^0 concentrations can then be correlated to position as determined by a hand-held GPS unit, and the resulting data mapped using a Geographic Information System (GIS). A detailed method for obtaining and analyzing data collected near gold shops in Mazuko, Peru is provided. Maps generated using this method were employed to identify point sources of Hg^0 contamination originating from gold shops in ASGM communities and were shared with local city managers to assist in urban planning.

- A detailed method is provided to collect and process data, ultimately generating a map that allows for the screening of a community to identify point sources of Hg^0 contamination.
- Raw data is provided, as well as a video detailing data processing and mapping using a common spreadsheet program and an open-source GIS.
- The generated map can be used for determining areas where people may be exposed to elevated Hg^0 concentrations and/or occupational mercury vapor exposure, targeted enforcement, or outreach to limit Hg^0 pollution.

* Corresponding author.
E-mail address: Kiefer_am@mercer.edu (A.M. Kiefer).

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