

## **Hg anomalies in air and related bedrock in the Acoculco geothermal field, Mexico**

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A significant amount of heavy metals, among them Hg, is emitted into the atmosphere from natural sources. However, the knowledge of Hg emissions from geothermal sources is still poorly investigated; they are therefore often considered as negligible contributors to the atmosphere. However, Bagnato et al. (2015) has reported up to 822 ngm<sup>-3</sup> in the air in two geothermal zones in Costa Rica. The Acoculco caldera, in the Trans-Mexican Volcanic Belt, is related to geothermal activity and is located between the Puebla and Hidalgo states in Mexico. Here, we present the first data ever of Hg anomalies in a geothermal field in Mexico. In 2018, two surveys (in spring and summer seasons) were carried out for Hg<sub>(gas)</sub> in the Acoculco caldera zone, covering 60 km<sup>2</sup>, aiming to measure gaseous elemental mercury (GEM) with a Lumex RA-915 M Atomic Absorption Spectrometer ®. This equipment allows acquisition of TGM each second over a wide range (2-25,000 ngm<sup>-3</sup>). These data were used to create dispersion maps by means of SURFER 15. The bedrock consists of heavily opalized volcanic rocks, locally with visible cinnabar. Measurements of the Hg contents in the air above the rock yielded high values. It was thus evident that, this HgS-bearing rock also carries enough native Hg to enrich the local air. Such air pollution will continue until all native Hg in the rock has evaporated, while the Hg tied to cinnabar will remain in the rock.