

Interpretation of mercury anomalous sources in drainage catchment sediments and soils of China

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China Geochemical Baselines project provides mercury dataset of drainage catchment sediments and soils during 2008~2012 in China. The Hg anomalies relative to the limits of the China National Environmental Standards for Heavy Metals in soil (GB 15618-1995) are discussed in detail. The sources of anomalies of the top and deep samples are variously interpreted with respect to geology/mineralization and human activities (non-ferrous metals smelting, coal combustion, industry, urbanization and agriculture). Nearly 72% anomalies (41 among the totaling 57 anomalous locations) are concerned with mineralisation/mining of deposits including Hg, As, Sb, Au, Ag, Pb, Zn, coal etc. However, it is difficult to distinguish the difference between mineralization and mining in this global-scale geochemical sampling. The anthropogenic sources of coal combustion, industry and urbanization cause the much more degree of mercury pollution in the eastern China, a highly populated and developed area. The influence of large-scale Zinc Smelters (e.g. in Zhuzhou and Huludao) and artisanal gold smelting of Hg amalgamation on Hg concentration in soils are reflected in the global-scale geochemical map. Agriculture is an important Hg-emission source in the Chengdu Plain, as a favorable agricultural base for more than 2500 years in China. It is critical to carry out the follow-up detailed source investigation and monitor the temporal changes of Mercury in soils.