

Type Au(Cu) ore body discovered first-time in Tonglushan deposit in Hubei Province

GUANG MA¹, GONG LI¹*, HU SHUNTIAN², HE SHIGEN²
AND GAO ERGEN²

¹Henan Polytechnic University, Henan, 454001, China

(*correspondence: gongli5678@163.com)

²Institute of Disaster Prevention Science Technology, Beijing 101601, China (grg@fzxy.edu.cn)

The Tonglushan deposit in southeastern Hubei Province is a crypto-explosive breccias-type gold (copper) deposit mines discovered first-time.

The ore bodies are controlled by compound structure comprising NWW-striking fault-crypto explosive breccias belt-contact zone. They are buried in the crypto-explosive breccias zone of contact area between porphyry body under granodiorite-porphyry and insidious marble. The ore bodies tend generally EW-NWW, nearly vertical, about 120m long and the average thickness are 20m, the controllable extended depth is 300 meters. At different elevation, the ore bodies show more rules ribbon shape. The average copper and gold contents in ores are 2.54×10^{-2} and 3.44×10^{-6} , respectively.

In the perpendicular direction to breccias zone (ore), from north to south, Cu, Au content was changed regularly; Cu from 3600×10^{-6} to 100.7×10^{-6} , Au from 199.6×10^{-9} to 1.74×10^{-9} , and reflects that Cu, Au content showed a decreasing trend with the far from the breccias zone (ore).

Crypto-explosive breccias type Cu-Au ore-bodies were formed at the late evolutionary stage of ore-forming fluids. They were formed later than skarn type Cu-Fe ore-bodies and often superimposed on them. The discovery of crypto-explosive breccias type Cu-Au ore-bodies contributes greatly to increasing the reserves of the Tonglushan deposit and to studying its metallogenic system.

This study is supported by the National Natural Science Foundation of China (Grant No.: 40072032), Dr. Fund (No:648512) and Teacher Foundation of China Earthquake Administration (No: 20090112)

[1] Luo Z.K. & Miao Y.L. *et al.* (1999) 'Breccia-hosted Au deposit-an Au deposits type to which attention should be paid.' *Chinese J. Ore Deposit Geology*, 15–23 (in Chinese).

Mercury and its isotope composition in lichens and sediments from particular pollution source

JING MA¹, HOLGER HINTELMANN¹, JANE KIRK²
AND DEREK MUIR²

¹Department of Chemistry, Trent University, Peterborough, ON. K9J 7B8, Canada

(*correspondence: jingma@trentu.ca)

²Aquatic Ecosystem Protection Research Division, Water Science and Technology Directorate, Environment Canada, Burlington, ON. L7R 4A6, Canada

Characterizing Hg isotope composition in the environment has been considered as an important tool of tracing Hg pollution sources. In this study, the goal is to assess the temporal variation of Hg isotope ratios by analyzing depths profiles in sediment cores and to assess the spatial variation of Hg and Hg isotope ratios in lichens collected at the different distances from the particular pollution source.

The study site is the typical mining town — Flin Flon at Manitoba. For sediment coring, lakes were selected along the main wind direction (NW-SE) within 70 km radius from the smelter. We predicted that Hg signature from the smelter would be significant at lakes near the smelter and lakes further away would show the mixture of two different Hg sources: smelter and background.

Lichens (*Cladonia Coniocraea* & *Cladonia Rangiferina*) were sampled along the wind direction within 70 km radius from the smelter. Lichens were also sampled at the Environment Lake Area (ELA), Ontario, which serves as the reference site. THg concentration from both sampling sites ranges from 15 ng/g to 450 ng/g. Hg isotope ratio data obtained near and with distance from the smelter as well as the reference site are compared to identify and characterize Hg source signatures.