

## **Ore-forming fluids in the Maoping and Piaotang W-Sn deposits (Jiangxi, China)**

H. LEGROS<sup>1\*</sup>, A. RICHARD<sup>1</sup>, J. MERCADIER<sup>1</sup>, A.  
TARANTOLA<sup>1</sup>, K.KOUZMANOV<sup>2</sup>, T. VENNEMANN<sup>3</sup>, L.  
BAILLY<sup>4</sup>, C. MARIGNAC<sup>5</sup>, N. CHARLES<sup>4</sup>, R.-C. WANG<sup>6</sup>,  
M. CUNY<sup>1</sup>, M.-Y. LESPINASSE<sup>1</sup>

<sup>1</sup> Université de Lorraine, CNRS, CREGU, GeoRessources,  
Boulevard des Aiguillettes B.P. 70239, F-54506-  
Vandoeuvre-lès-Nancy, France

<sup>2</sup> Department Earth Sciences, University of Geneva, Rue des  
Maraîchers 13, 1205 Geneva, Switzerland

<sup>3</sup> Institut des Sciences de la Terre, Université de Lausanne,  
Quartier UNIL-Mouline, Bâtiment Géopolis, CH-1015  
Lausanne, Switzerland

<sup>4</sup> BRGM-French Geological Survey, 3, Av. Claude Guillemin,  
BP 36009, 45060 Orléans Cedex 2, France

<sup>5</sup> Ecole Nationale Supérieure des Mines de Nancy, Parc de  
Saurupt, F-54042 Nancy, France

<sup>6</sup> State Key Laboratory for Mineral Deposits Research,  
School of Earth Sciences and Engineering, Nanjing  
University, Xianlin University Town, Nanjing 210046-  
China

The Jiangxi province is currently the world's leading tungsten producer thanks to numerous vein-type W-Sn deposits developed around peraluminous granitic intrusions emplaced during the Early Yanshanian event (150 to 160 Ma). Among the many aspects of the ore-formation, the respective implications of magmatic vs non-magmatic fluids deposits is still controversial.

A fluid inclusion study in quartz, cassiterite, wolframite, topaz and fluorite from Maoping and Piaotang was carried out to investigate the nature of hydrothermal fluids from pre-ore to post-ore events [1]. Primary and pseudo-secondary fluid inclusions in all investigated minerals and in both deposits show a liquid phase vapor phase at 25°C. The vapor phase contains trace amounts of volatiles (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>) as revealed by Raman spectroscopy. Microthermometry shows that homogenization of the fluid inclusions to liquid phase occurs between 136° and 349 °C and ice melting temperatures are between -14.2° and 0.0 °C, implying salinities ranging from 0.0 and to 12.6 wt.% NaCl equiv. Fluid inclusions temperature-corrected δ<sup>18</sup>O values are between -3.6 and 9.1‰ and δD values are between -76.5 to -55.2‰. All data point to a mixing between magmatic and external fluids during the main ore stage.

[1] Legros *et al.* (2016) *Lithos* **264**, 108-124.