

METALLIFEROUS PEAKS AND OROGENIC PROCESSES

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Links between metalliferous peaks and major tectono-thermal events associated with orogenic processes are established in varied belts, from Archaean greenstone belts to present active geothermal system. Vertical / lateral extension and evolution of the main metalliferous provinces are modelled in reference to PTt paths and structural context of the host rocks. Fits between the São Francisco and Congo cratons and between the Guyana and West African shields reveal continental scale hydrothermal paleofields active at the Archaean - Proterozoic boundary and later at around 2.0 Ga, i.e. during the Transamazonian and Eburnean orogeny. The crustal dimension of some hydrothermal paleofield is demonstrated in the Western European Variscan belt where Au-W-Sb mineralizations are emplaced during the collapse of the belt at 305 Ma in the French Massif Central. In conclusion, sources, channelling and trapping of the fluids give constraints on the thermal and mechanical evolution of these belts that can't be given by any other methods of investigation. Thus, mechanism involved in the production of metals are essential for characterisation of each orogenic context.