



VARISCAN MINES





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La Lucette Sb-Au

Sb

20 µm

The genesis of gold in Sb-As and Sb-Au ore veins, new constraints from the La Bellière and La Lucette districts (Armorican Massif, France)

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1. Introduction and motivations

Why \rightarrow Recent advances in the understanding of the Sb mineralization ignoring the potential valuable co-products as Au.



<u>Aims</u> \rightarrow ascertain the distribution of Au + ore deposition insights in the late-Variscan Sb-As and Sb-Au vein-types (Armorican Massif).

2. Ore-samples and geochemical analyses



No visible Au observed. Au grades max 1.3 g/t Au \rightarrow highly correlated with As.

EPMA analyses 25 Py/Mar La Bellière Sb-As 100 µm

Same mineralogical evolution: early arsenopyrite (Asp) and late stibnite deposition in quartz gangue.

3. Au occurrences and arsenopyrite chemistry

Sb-rich Asp in both districts: variable amounts of Sb (from 0 to 7 Wt. % Sb).

nilky-comb Qz

La Lucette Sb-Au

Au grades average 40 g/t Au

 \rightarrow correlated with Sb-ore.

Chemical zoning : rims enriched in As and depleted in Sb and Fe. Invisible Au: between 70 to 223 ppm

Sb and Fe grades

4. Mechanism of gold genesis and conclusions

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The Sb-As type \rightarrow only invisible in Asp lattice \rightarrow by substitution of Fe+Sb for As (> 300 °C) \rightarrow same mechanism than in **Epizonal Orogenic** Gold deposit (ex: Roudny Au-Ag deposit, Bohemian Massif)

The Sb-Au type \rightarrow also invisible Au with higher grades (> 200 ppm).

Electrum deposition \rightarrow potential **remobilization processes from Asp.**

Late native gold -> precipitation from a Sb-enriched fluid + post-stibnite remobilization process.

Improvement of the Sb-As mining attractivity with Au co-product > 1 g/t Au \rightarrow potential application at the Europe's scale

EPMA map

high grades As

20 kV 105 nA

