Pb ISOTOPE STUDY OF STIBNITE MINERALIZATION FROM THE WESTERN CARPATHIANS

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The most important Sb mineralization of the Western Carpathian region are located in four structural and metallogenic zones: 1) Tatric unit, 2) Veporic unit, 3) Gemeric unit and 4) neovolcanic complexes. The stibnite mineralization in Western Carpathians are genetically related both to the Variscan and Alpine orogenic cycles.

The original source of the lead from the stibnite deposits is not homogeneous. The μ_2 values are close to the evolution curves of orogenic lead (Fig. 1). Lead was predominantly derived from crustal granitic and metasedimentary rocks or from related material. It is possible to distinguish three individual crustal orogenic lead sources: 1) for the Tatric unit, 2) for the Gemeric unit and 3) for stibnite mineralization in neovolcanites. The samples from Gemeric unit shows different mixture of crustal and mantle materials and a later enrichment in μ and W, *i.e.* during younger events, *e.g.* metamorphosis, mobilization of metals, recrystallization *etc*. Stibnite samples from Nízke Tatry Mts. and those from the Gemeric unit contain more radiogenic lead than that in galena (Fig. 1). The most radiogenic lead was found in samples from the Gemeric unit and Malé Karpaty Mts. These results correspond to those of the paleotectonic study published by CHOVAN *et al.* (1999). According to this study the Gemeric unit and Malé Karpaty Mts. represent Late Variscan accretionary prisms.

The presented data are comparable with those of KANTOR & RYBÁR (1964) and ČERNYŠEV *et al.* (1984). They show identical patterns of metamorphic processes and correspond to the paleotectonic scheme of Sb-Au mineralization presented by CHOVAN *et al*. (1999) and indicate that the most radiogenic lead is in stibnite samples from mineralization formed in paleotectonic accretionary prisms (Malé Karpaty Mts. and the Gemeric unit).

References

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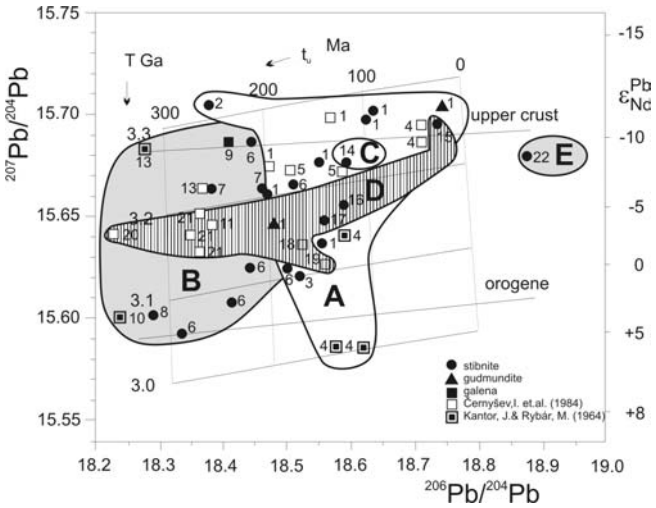

Fig. 1: Evolution diagram of $^{206}Pb/^{204}Pb$ *vs*. $^{207}Pb/^{204}Pb$ – isotopic composition in Sb minerals and galena (according to AMOV, 1993) from the Western Carpathians. **A – Malé Karpaty Mts.:** 1–Pezinok, 2–Kuchyňa, 3–Pernek-Pod Krížnicou, 4–Pod Babou, 5–Častá; **B – Nízke Tatry Mts.:** 6–Dúbrava, 7–Magurka, 8–Mlynná Dolina Valley, 9–Malužiná, 10–Lom, 11–Jasenie-Soviansko, 12–Dve Vody, 13–Trangoška; **C – Tatry Mts.:** 14–Kriváň; **D – Spiš-Gemer Mts. (Gemeric unit):** 15–Poproč, 16–Grexa, 17–Helcmanovce, 18–Hnúšťa-Ostrá, 19–Rochovce, 20–Nižná Slaná, 21–Rákoš; **E – Eastern Slovakian Neovolcanites:** 22–Zlatá Baňa.