

Summary

Region surrounding the Central Bohemian Plutonic Complex represents one of the most important gold bearing zones in the Czech Republic. Several types of gold deposits dominated by hydrothermal quartz gangue were explored here and distinguished: the Intrusion related gold deposits (“Petráčkova hora“ and “Mokrsko“) and the orogenic gold deposits (“Jílové u Prahy” and “Kasejovice”). Deposits “Libčice u Nového Knína“ and “Roudný u Vlašimi” are partially similar to the orogenic gold type, but are different from other orogenic type deposits in the region.

All together 38 samples from these five deposits were analyzed with laser ablation technique (LA-ICP-MS) to produce 228 measurements. Selected samples were selected to represent both main quartz gangue carrying the Au ore and latter weakly mineralized quartz gangue. Samples representing hydrothermal quartz gangue with no direct relation to Au-ore deposits were also collected in order to compare chemical composition of both quartz types originating from the same area.

Main concern of this work was in-situ analysis of chemical composition of different generations of quartz gangue and statistical comparison of differences within individual deposits as well as comparing the examined deposits themselves.

Total 65 isotopes were measured, trace element admixture in quartz is represented mainly by Al (up to 2800 ppm), Sb (up to 50 ppm), Ti (up to 240 pm) and Li (up to 280 ppm). Locally, elevated contents of Ba, Mg, Fe, Cu, Zn Pb, W and Th were detected. Elevated contents of Li or Ba were detected in some late quartz veins, suggesting interaction of the parental fluid with external crustal brines. Content of Ti in quartz was also tested in terms of application of Ti-thermomery. The highest contents of Ti were measured at the Petráčkova hora deposit. This is in agreement with the supposed high-temperature conditions of formation of this deposit..