Re-Os geochronology of granite-related molybdenite mineralizations from the Bohemian Massif

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The Bohemian Massif represents the easternmost and the largest exposure of the Variscan orogenic belt in Europe. It is known for numerous Au, Sn-W, U and base metal hydrothermal ore deposits located in different geotectonic units and positions. These mineralizations are sometimes accompanied by molybdenite, which is much more widespread in magmatic rocks related to granitoids [1] occurring throughout the Bohemian Massif (Czech Republic).

We present new Re-Os data for a suite of molybdenite samples from seven different localities occurring in granitoids and/or related hydrothermal systems of Variscan (~370-280 Ma) and Cadomian (~580-520 Ma) ages. This sample set includes molybdenite dispersed in the magmatic rock matrix, small quarz veinlets and/or located in fissures of the parental granitic bodies (Krupka, Padrť, Žulová, Čistá, Dyje massif) as well as molybdenite associated with Sn-W-bearing and/or barren greisens (Krásno, Moldanubian Pluton).

The samples have highly variable Re–Os concentrations (Re = ~4–602 ppm, ^{187}Os = ~12–2133 ppb) with the highest contents found in molybdenite hosted in granites and associated quartz veins. In contrast, molybdenites associated with highly evolved greisens are characterized by very low Re and ^{187}Os concentrations (< 2 ppm and 5.6 ppb, respectively). The Re–Os ages for the studied molybdenites associated with Variscan granitoids (Žulová pluton, Moldanubian Pluton, Padrť, Krásno, Krupka, Čistá) yield variable dates from ~282 to 377 Ma while the molybdenite enclosed in the Cadomian Dyje Massif yields 584 ± 4 Ma. These ages are similar and/or slightly lower to U-Pb and/or Pb-Pb zircon ages of associated granites suggesting (semi)contemporaneous magmatism and Mo-mineralization.

[1] Drábek *et al* (1993) *Bulletin of the Geological Survey Prague* **68**, 11-17