

**GEOLOGICAL MAPPING OF THE TWO-MICA GRANITES
IN THE WEITRA – NOVÉ HRADY AREA**

by

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Geological maps published by the Czech and Austrian Geological Services differ significantly in the interpretation of the internal structure of the South Bohemian Pluton in the Weitra–Nové Hradý area. "Eisgarn" type granite of the Austrian map comprises all varieties of two-mica granites while on the Czech maps the "Mrákotín" type granite and several types of coarse-grained granites are distinguished. Thus, apart from fieldwork we undertook petrological and geochemical revision of the two-mica granites in the border area.

The following granite types have been distinguished within the area:

1. "Aussengranit" - fine-grained granites build up the external part of the pluton, often along the contact with the biotite bearing Weinsberg granite to the E, S and SW of Weitra. In Bohemia, an identical granite appears between the "Jelení hřbet" hill and Besednice. This granite is generally equigranular, only locally porphyritic (between Schwarzau and Pohorská Ves, Kfs up to 1 cm). The content of biotite is much higher than that of muscovite. This granite petrographically resembles the granite from Mrákotín in the northern part of the SBP and is chemically similar to the Číměř granite. Typical content of SiO₂ is 69 - 72 %, K₂O reaches 5.2 - 5.5 %, Na₂O 2.6 - 2.7 %, MgO 0.4 - 0.9 % and CaO 0.7 - 1.0 %.

2. Eisgarn granite s.s., a generally coarse-grained two-mica granite builds the central part of the area between Weitra and Nové Hradý. This body, similar to the Eisgarn body N of Gmünd, is chemically concentrically zoned with a less fractionated rim and more fractionated core. The core is enriched in Na, Rb, Li, F, and U. In the central part of this body, an intrusion of strongly fractionated muscovite granite occurs near Pyhrabruck [1]. The typical content of SiO₂ reaches 71 - 73 %, K₂O 4.5 - 5.0 %, Na₂O 3.0 - 3.3 %, MgO 0.2 - 0.4 % and CaO 0.5 - 0.8 %.

3. Fine- to medium grained biotite granite with high magnetic susceptibility crops out between the villages of Karlstift and Langschlag (Karlstift granite sensu KLOB [2]). Typical content of SiO₂ is only 67 - 69 %, K₂O reaches 4.2 - 4.5 %, Na₂O 3.2 - 3.4 %, MgO 0.8 - 1.3 % and CaO 1.9 - 2.9 %.

4. Fine-grained biotite granite was found in several areas near St. Martin and Nebelstein. Characteristic features of this granite are the high contents of Sr and Th and often displays also high magnetic susceptibility. This rock most likely does not belong to the family of Eisgarn granite s.l. Typical contents are: SiO₂ 71%, K₂O up to 4.7 - 4.9 %, Na₂O 2.9 - 3.1 %, MgO c.0.7 % and CaO 1.3 - 1.5 %.

5. A small body of pegmatoidal muscovite granite was found near the center of the St. Martin magnetic anomaly. This type of muscovite granite is, in contrast to muscovite granites accompanying the Eisgarn intrusion, geochemically primitive, more enriched in silica, but without any enrichment of F, Rb, Li, Sn, U etc. Typical contents are: SiO₂ up to 75 %, K₂O 4.1 - 4.4 %, Na₂O 3.3 - 3.6 %, MgO max. 0.1 % and CaO max. 0.5 %.

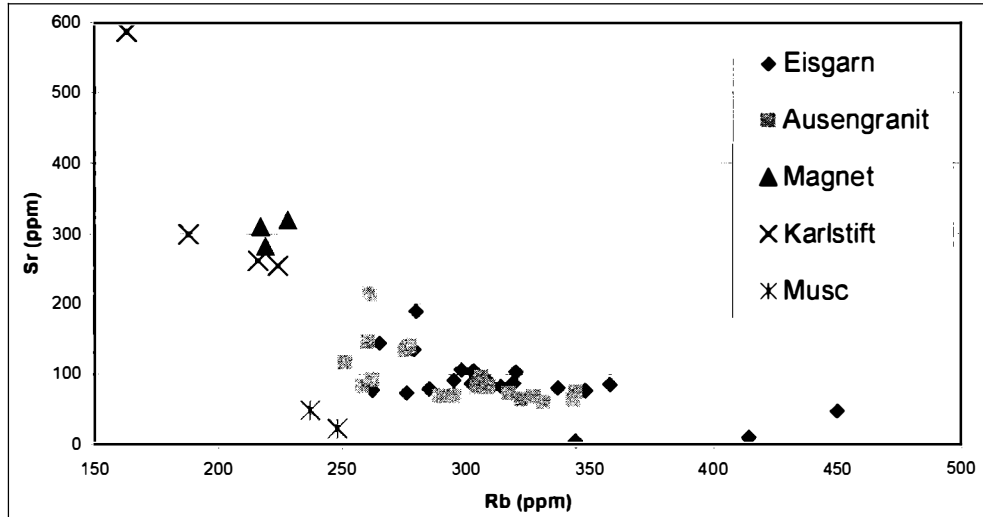


Fig. 1

The Rb-Sr plot of granites under investigation: Eisgarn – coarse-grained two-mica granites of Eisgarn type in central part of the pluton, Ausengranit – fine-grained granites in external part of the pluton, Magnet – biotite granites with elevated magnetic susceptibility from the area St.Martin-Nebelstein, Karlstift – biotite granite from the Karlstift area, Musc – muscovite granite from St. Martin magnetic anomaly.

Acknowledgement

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References

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