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The Polyphase Thermal History of the Erbendorf-Vohenstrauß (ZEV)  
and Erbendorf Greenschist (EGZ) Zones of NE Bavaria  
in the Light of Ar-Ar spectra

In the 1960<sup>th</sup> from petrological observations (VOLL 1960) and from a single Rb-Sr biotite date (DAVIS and SCHREYER 1962) it had been realized that the ZEV is distinct from the neighbouring Moldanubicum and Saxothuringicum which both were formed in the mid-Carboniferous. Two decades later, in the course of the pre-site studies for continental deep drilling (KTB) radiometric work substantiated a Devonian forming of the ZEV and EGZ (e.g. SCHÜBLER et al. 1986, Teufel 1988, ALBAT et al. 1989).

In the western part of the ZEV half of the K-Ar hornblende dates are close to 380 Ma, muscovite dates are around 370 Ma with a slightly increased scatter, and scarce biotite dates exceed the muscovite dates. This pattern indicates a major event around 380 Ma and moderate later thermal influences. It was unknown whether hornblende dates around 390 Ma and  $\geq 400$  Ma were to be interpreted either as relics of somewhat earlier metamorphic stages, or if they were due to excess argon picked up during the moderate late thermal influences.

Although an earlier metamorphic stage around 390 Ma is obvious from U-Pb work on zircon (TEUFEL 1988) and Rb-Sr whole-rock analyses (ALBAT et al. 1989) Ar-Ar spectra point to excess argon in all hornblendes with conventional dates that exceed 380 Ma. No relics of earlier metamorphic stages are preserved by the K-Ar systems in the ZEV, nor in the EGZ.

Muscovite spectra for the KTB drill hole point to a 370 Ma closure, and a moderate and locally different loss of radiogenic argon at 360 to 355 Ma. The loss pattern can be correlated with the hydrothermal activity which ALBAT et al. (1989, in press) deduced from Rb-Sr dates of about 360 Ma on biotites and on thin slabs from gneisses with mineralized quartz veins, found in the Püllersreuth bore hole.

The K-Ar systems of the whole eastern part of the ZEV (east of the NS trending Leuchtenberg Granite), and marginally also some systems of the western part, are reset to  $\leq 325$  Ma. It is still open if this rejuvenation is caused by the granites which in one case yielded a biotite plateau age of 325 Ma, or by the low-pressure metamorphism of the adjacent tectonic units.

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