

EGU2020-10533

<https://doi.org/10.5194/egusphere-egu2020-10533>

EGU General Assembly 2020

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



Late- to post-Variscan magmatism in the Lusatian Block occurred during two short episodes: Evidence from zircon dating

Alexandra Käßner¹, Marion Tichomirowa¹, Manuel Lapp², and Dietmar Leonhardt²

¹TU Bergakademie Freiberg, Institut für Mineralogie, Freiberg, Germany (alexandra.kaessner@mineral.tu-freiberg.de)

²Geological Survey of Saxony, Freiberg, Germany

In the Late Carboniferous to Early Permian, post-orogenic processes led to the intrusion of compositionally diverse granitoids and to intense silicic volcanism in Central Europe. In the Lusatian Block, which is situated in the eastern part of the Saxothuringian Zone of the Variscan orogen, the late- to post-Variscan granitoids are subordinate in comparison to the Cadomian basement and late- to post-Variscan volcanic rocks are almost absent. The Lusatian Block is bound towards the NE and the SW by major deep reaching fault zones. Both the granitoid and the volcanic rocks are situated near the boundaries of the block and probably associated with the major NW trending faults of the Elbe Fault Zone (e.g. Hammer et al., 1999, Lisowiec et al., 2014, Oberc-Dziezic et al., 2015). The Elbe Fault Zone is a continental scale zone of crustal weakness that was reactivated with different kinematics at different times (Scheck et al., 2002).

We acquired new precise CA-ID-TIMS U-Pb zircon ages of the Koenigshain and the Stolpen granites and the volcanics of the Weissig Basin. Our new data show that the Variscan magmatism of the Lusatian Block occurred at two distinct periods, depending on the structures on which they are bound. The age difference between the two groups (12 Myr) is clearly evident in both CA-ID-TIMS and evaporation analyses. Consequently, zircon evaporation data of other granitoid and volcanic rocks that were not dated with CA-ID-TIMS can be assigned to one of the two groups in the Lusatian Block. The new age dating allows comparison of the evolution of the investigated rocks to adjacent Variscan magmatic rocks.

References:

Hammer et al. (1999), *Z. geol. Wiss* 27, 401-415.

Lisowiec et al. (2014), *Acta Geologica Polonica* 64 (4), 457-472.

Oberc-Dziezic et al. (2015), *Int. J. Earth. Sci.* 104, 1139-1166.

Scheck et al. (2002), *Tectonophysics* 360, 281-299.