

40Ar/39Ar dating of geological events of the Allchar deposit and its host rocks: preliminary results

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Allchar is a Sb–As–Tl–Au deposit located at the north-western margins of Kozuf Mountains in Macedonia. Geotectonically, it belongs to the western part of the Vardar Zone and is related to a Pliocene-Quaternary volcano-intrusive complex located in the vicinity of the border between FYR Macedonia and Greece, along a major regional fault zone located between the rigid Pelagonian block on the west and the label Vardar zone on the east (Yanev et al. 2008). As a whole, the magmatism is related to ongoing extension in the Aegean region. The predominant structure of the Allchar area is a NNW–SSE oriented antiform. Several ore bodies occur within a ca. 2 km long and 300–500 m wide zone.

Here we report preliminary Ar–Ar mineral ages from the host volcanic rocks and from country rocks. These will be recalibrated to the highly precise age of the Fish Canyon Sanidine monitor, for which a highly precise and accurate age has recently reported (Kuiper et al. 2008). So, our ages are preliminary. Unaltered and altered volcanic rocks yield Ar–Ar ages ranging from 3.3 – 4.0 Ma (sanidine), 4.6 – 4.8 Ma (biotite) and ca. 4.8 Ma (amphibole). Detailed age dating on rocks from the alteration zone with the main aim to date the exact age of hydrothermal activity is ongoing (see Pavičević et al. 2006). We interpret the amphibole and biotite ages to monitor age of magma emplacement and the sanidine ages to represent hydrothermal overprint. Sericite from altered rocks at the contact between the subvolcanic intrusions and Triassic dolomite and/or tuffaceous dolomite yield unexpectedly old ages of ca. 120 Ma. We interpret this age to record metamorphism of country rocks.

References

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