K-Ar GEOCHRONOLOGY OF IGNEOUS AMPHIBOLE MACROCRYSTALS OF MIOCENE TO PLIOCENE VOLCANICLASTICS, STYRIAN BASIN, AUSTRIA

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The Styrian Basin basin is situated at the south-eastern margin of the Eastern Alps. Two basement highs separate the Styrian Basin in sub-basins: the Middle Styrian Basement High divides the shallower Western Styrian Basin (with ~800 m thick Neogene sediments) from the Eastern Styrian Basin (with a ~3000 m thick infill). A second, the South Burgenland Basement High, separates the West Pannonian from the Styrian Basin. The north-south trending Auersbach Basement High separates the Eastern Styrian basin in two sub-basins.

The Eastern Styrian Basin hosts distinct volcanic depocentres represented by Miocene (Karpatian to Badenian) shield volcanoes and volcanic tuff intercalations situated within Badenian sediments. A second phase of basaltic volcanism has a Late Miocene to Pliocene age. The Western Styrian Basin hosts only one Middle Miocene volcano. Most of the Middle Miocene volcanics are covered by sediments and are known only from boreholes and geophysical studies.

In this study (BOJAR et al., 2013), we present new K/Ar ages on amphibole phenocrysts of volcaniclastic rocks from the Styrian Basin, Austria, as well as from the adjoining areas. Beside Lower Miocene shield volcanoes and Pliocene effusive alkaline volcanic rocks the eastern Styrian Basin hosts a number of phreatomagmatic tuff occurrences. The tuffs contain the well known mantle xenoliths and frequent amphibole phenocrysts. The new age data indicate that the Late Miocene phreatomagmatic volcanism started at 7.51 Ma (Pontian) and ended at 2.72 Ma (Romanian). The complete interval of the youngest volcanism in the Styrian Basin covers 6 million years, similar to the volcanism of the western part of the Pannonian Basin and the Nógrád/Novohrad area (West Carpathian).

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