A LATE VARISCAN DUCTILE MYLONITE ZONE IN THE SOUTHERN KREUZECK MOUNTAINS, AUSTRIA

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Upper structural levels within basement sequences of the southern Kreuzeck Mountains comprise a ductile mylonite zone that separates, in the present tectonic position, a quartzitic phyllitic micaschist unit in the footwall from a micaschist unit in the hangigwall (both belong to the Strieden tectonic unit as defined by HOKE, 1990). The mylonite zone is parallel to a variable thick, boudinaged epidote amphibolite layer that is associated with quartzite and dark phyllite. The mylonitic foliation generally dips towards N and a mineral (amphibole) respectively stretching lineation gently plunges towards WSW. Structures related to deformation are boudinage, shear bands and (-type asymmetric clasts. Furthermore, asymmetric quartz c-axis patterns combined with all above described shear criteria consistently indicate a top to the WSW noncoaxial rock flow of hangingwall tectonic units using present tectonic position. All rock-forming minerals are throughout recrystallized under syndeformational peak metamorphic conditions, so that these represent conditions of mylonite formation. Peak P-T conditions are estimated to have occurred within epidote amphibolite facies conditions (c. 450–500°C, 4–6 Kb). Furthermore, bell-shaped element zonation (e.g., MnO) within synmetamorphic rotated garnets is interpreted to represent progressive metamorphic conditions during burial of the sequence. Consequently, the mylonite zone is interpreted to represent a zone of synmetamorphic thrusting.

The subvertically oriented Permian to Triassic sedimentary cover units on these basement rocks are separated by a major brittle fault (Drau valley fault) from the basement that gently dips towards N so that apparent structural relationships suggest tectonic inversion. Therefore, the present exposure relationships do not allow decision whether the mylonite zone is overturned during Alpine tectonic processes or not.

This new example of a late Variscan mylonite zone is in line with previous reports on late Variscan structures within the Austroalpine and Southalpine basement units that all indicate a top WSW to S ductile shear within present-day geographic coordinates (NEUBAUER, 1989; RING and RICHTER, 1993).

HOKE, L. (1990): - Jb. Geol. Bundesanst., 133: 5–87.
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