



The U-Pb age of one type of porphyritic dykes ("Rojen dyke swarm") in Oetztalnappe - Austroalpine in the area of Zehnerkopf and Vallungsspitze (South Tyrol/ Italy)

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The Zehnerkopf and Vallungsspitze areas of South Tyrol (Italy) area is intruded by several types of porphyritic dykes known as the 'Rojen dyke swarm'. These dykes cut micaschists assigned to Oetztal - Stubai Crystalline Complex discordantly and may be divided into more than three types, according to their mineral mode (Troll et al. 1988). The thin sections of these dykes show a very slight metamorphism in the greenschist facies. Dykes collected in the vicinity of the Rojen valley have been studied for major and trace element geochemistry and have been dated by U-Pb LA-ICP-MC-MS methods. Chemically all these dykes resemble basaltic andesite with 55-57% SiO₂ content ranging. Troll et al. (1988) assumed these dykes may be attributed to an Oligocene igneous event during a tensional tectonic regime. Zircon was separated from two dykes and dated U-Pb by using laser ablation ICP-MC-MS at the NERC Isotope Geoscience Laboratory facility in the UK using a common Pb correction for analyses according the method of Horstwood et al. (2003), and using the 91500 standard as a monitor of accuracy and precision at the same laser conditions. Oscillatory zones within the crystals were dated with dates being Ordovician and Carboniferous respectively. In the area of Vallungsspitze the magmatic age of the dyke is 460.9 +/- 6.5 (2sd) Ma whereas the dyke in the Zehnerkopf area is 307.4 +/- 9.4 (2sd) Ma old. The Carboniferous age of the dyke fits well into the regional age pattern where cooling to

ca. 300°C is reached at about 300Ma (K-Ar on Biotite, Thöni, 1980). The significance of the Ordovician age of the dyke remains to be further investigated. (Horstwood et al. (2003): J. Anal. At Spectrom, 18, 837-846; Thöni M. (1980): Mitt. österr. geol. Ges, 71/72, p139-165; Troll et al. (1988): Jb. Geol. B.-A, 131, Heft 4, p649-662)