Abstract

Zircon-greenhorns on a scheelite-slide

A rare hand specimen with Y-containing zircon crystals formed from locally circulating hydrothermal fluids in an alpine fissure at Wannigletscher, Binntal, Switzerland, was dated using the U-Th-Pb-method and compared to ages obtained from a relict zircon crystal in the host gneiss. Zircon in the fissure crystallized 19.6 ± 0.8 million years (Ma) ago, i.e. being on the older end of various other alpine fissure mineral (monazite-(Ce) and rutile) age determinations which range between 10 and 19 Ma. The relict zircons show a strong zonation with core ages of 220 ± 7 Ma and a thin crystal surface age of 21 ± 2 Ma which recrystallized during alpine fissure mineralization in the region. Furthermore, an update on other minerals found in the fissure is given comprising previously unpublished occurrences of scheelite and gadolinite-(Y).

Keywords: zircon, hydrothermal, age dating, U-Th-Pb-method, alpine orogensis, fissure mineralization, Binntal