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Titel

Temperatures of fissure mineralization in the western
Hohe Tauern area.

Fissure mineralization took place in the western Hohe Tauern area (Tyrol, Austria) during a phase of tensional tectonism caused by the uplift of the penninic rocks, following the main period of tectonic activity associated with alpine metamorphism

Oxygen isotope fractionations between coexisting minerals (e. g. quartz and biotite) in the fissures did not differ from fractionations determined between the same minerals in surrounding rocks. The fissure minerals must therefore have formed at similar temperatures as the minerals which recrystallized during the last phase of alpine metamorphism. The temperature maximum and the tectonic activity were not contemporaneous, however as the main phase of tectonic activity occurred before temperature climax of metamorphism. There is no isotopic evidence to indicate that fissure mineralization occurred during a late, hydrothermal event.

During the cooling of the Hohe Tauern area ankeritic dolomite exolved from high magnesium calcite. An estimated temperature of 425 to 570 °C for this exolution was derived by Hörmann and Morteani (1972) from the iron and magnesium partitioning among the carbonates. Oxygen isotope measurements indicate that no measurable reequilibration of the anionic framework occurred during the rearrangement of cations.