Ein undeformierter Metasomatit (Kalifeldspatgestein) aus dem Kontakt zwischen der Sulfidvererzung und dem metamorphen Nebengestein in der Sulfid-Lagerstätte Silberberg bei Bodenmais weist ein konkordantes mittleres Alter von 324 ± 5 Ma auf. Dieses Alter wird auch als Bildungsalter der Sulfidvererzung interpretiert.
Die hier untersuchten leukokraten Gesteine haben ähnliche Verteilungen der Kernalter: konkordante Kernalter liegen zwischen 380 und 660 Ma, diskordante Analysen weisen auf 1,8 and 2,5 Ga.

Der Eklogitamphibolit aus Hermannsried ist gekennzeichnet durch Zirkone mit oszillierender Zonierung und mit relativ einfachen Internstrukturen ohne ererbte, alte Komponenten. Mit dem konkordanten mittleren Alter von 481 ± 8 Ma wird die magmatische Bildung des basaltischen Ausgangsgesteins datiert.

Strength Reversal of Porphyroblasts. A Potential Tool for Estimating Strain Rate

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The Plattengneiss shear zone in the Eastern Alps contains two textural features that may be interpreted of its strain rate: 1.) The rock contains porphyroblasts of (a) K-feldspar, (b) plagioclase, (c) aggregates of plagioclase and quartz. 2.) The decompression reaction of muscovite to biotite is preferentially located in pressure shadows behind garnet. Here we explore the rheological implications of different porphyroblast phases in the rock. The fact that three different porphyroblasts occur in the gneiss implies that all three phases or aggregates are of similar rheology. We show that they only may be of similar rheology (i.e. near conditions of strength reversal) if they are strongly non-linear viscous and if the stress exponents of the three phases have considerably different values. Differences in activation energy and pre-exponent constant of the flow law play a subordinate role. We explore both the strain rates at which this may occur (using rheological constants from the literature) and the rheological constants that allow strength reversal (using assumed strain rates).

Shallow high-resolution seismics along the TRANSALP profile in southern Bavaria

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A high-resolution reflection seismic survey was carried out in the southern part of the Bavarian Molasse basin in 1998 and 1999. The survey aimed at investigating the near-surface structure of the complicated transition from the unfolded Foreland Molasse to the Folded Molasse, and the Folded Molasse to the internally complicated thrust systems of Helveticum, Ultrahelveticum and Rhenodanubian Flysch. The study is linked to the TRANSALP seismic project, and results contribute to fill the gap between surface and upper 300 to 500 ms two-way traveltime, typical of deep-reflection seismic experiments.

The contact zones are covered totally by Quaternary sediments. During the survey the acquisition parameters of geophone spread, spacing and frequency range were particularly adjusted to reflectors which are expected to dip steeply southwards. A high-frequency vibrator was used designed for shallow reflection surveys.

The common problem of the Quaternary cover with glacial deposits complicates the data processing to a large extent. To this the complicated geological/tectonical conditions and the unfortunate circumstances for energy distribution are added. The consequences are that in most cases evaluation of reflection hyperbolic functions is not possible in raw data. Only after a time-demanding pre-stack processing, reflections with travel-times up to 300 ms TWT can be interpreted in unstacked sections. This affords a sensitive combination of air blast attenuation, spectral balancing, bandpass filtering and amplitude scaling. This combination proved to work successfully when permanently adjusted to the quickly changing data quality along the profile. The muting zone has to be estimated for each vibration location separately, so that in addition, small spatial and near-surface velocity variations could be taken into account.