Geologically the Pb-Zn-Cu ore deposits are mainly stratabound, layerbound, cleavage concordant as well as disconcordant within the pre-Variscian metasediments (paragneises and mica schists) acid and basic metavolcanics (augengneisses and amphibolites) of the Ötztal Complex. At the foot wall the ore deposit is surrounded by the „Variegated-Series“ of the Schneeberg Complex containing garnet micaschists, amphibolites, and paragneisses. The hanging wall consists of metamorphic verrucano and fragments of the Brenner Mesozoic. The ore-hosting rocks strike with 60°-70° ENE-WSW and dip with 30-35°NNW. Although the area around Schneeberg is a polymetamorphic crystalline complex, with at least two (Variscan, Eo-Alpine) main episodes of metamorphism, in the ore deposits, only one metamorphic event, Eo-Alpine metamorphic overprint, was detected so far.
The ore paragenesis of the Schneeberg is highly variable and includes native elements such as Au, Ag and Bi, as well as Pb-, Zn-, Cu-, Fe-sulphides such as galena, sphalerite, pyrrhotite, chalkopyrite, sulfosalts as boulangerite, bounonite, pyrargyrite and Ag-tetraedrite, and mainly Fe-oxides like magnetite. The gangue is composed of quartz, calcite, siderite, andradite, manganophyllite, Antigorite as well as biotite and grossular. In the course of this investigation, it is planned to perform a detailed mineral chemical survey of the ore minerals with the electron microprobe analyser.
The a-b transformation lamellae in chalcopyrite are an evidence for minimum temperatures of 547° ±5°C. Another evidence for a high-*T* hydrothermal formation are star-shaped sphalerite exsolutions in chalcopyrite indicating a temperature of 500°C ±10°C. These T-estimates are in agreement with Eo-Alpine T-estimates from the southern ÖC and the adjacent Schneeberg Complex, indicating a strong remobilisation as well as recrystallization during the Eo-Alpine metamorphic event.

Poisson’s ratio of the crust and Moho structure from shear wave analyses in the Eastern Alps and their surroundings

Behm, M., CELEBRATION 2000/ALP2002/SUDETES 2003 Working Groups

Institut für Geodäsie und Geophysik Technische Universität Wien Gusshausstrasse 27-29/1282 A-1040 Wien; mbehm@mail.tuwien.ac.at

The knowledge of shear (transversal) wave velocities is of high importance for geological interpretations of geophysical models. Detailed information on shear wave velocities allows restricting the manifold of geological models which are usually obtained from longitudinal wave velocities and/or supplementary geophysical data (e.g. density, conductivity). However, shear wave velocities one crustal scale are rarely well known due to relatively elaborate measuring conditions.
Between 1997 and 2003, several large seismic 3D wide angle and reflection experiments were launched in Central Europe to explore the lithospheric structure. Seismic waves from shot points in boreholes (average charge 300 kg TNT) were recorded on a net of arbitrary oriented seismic profiles, thus enabling to identify inline and crossline wave arrivals (refractions and reflections from the crust and uppermost mantle). Despite that only vertical component geophones were used, good quality shear waves are also regularly observed in the seismic sections, in particular refractions (Sg) from the crust and reflections (SmS) from the Moho. We focus on a data subset from the CELEBRATION 2000, ALP 2002 and SUDETES 2003 experiments, which covers the area of the Eastern Alps and their transition to the surrounding tectonic provinces (Bohemian Massif, Southern Alps/Dinarides, Pannonian Domain).
A 3D seismic shear-wave velocity model of the crust based on Sg waves is presented. The middle and even lower crust of the Bohemian Massif are covered well by the model. In some parts of the orogens (Eastern / Southern Alps) the energy loss due to the complicated tectonic structure allows for interpretation of the upper crust only. Based on this and previously determined P-wave velocities, the 3D distribution of Poisson’s ratio is calculated. S-wave velocities and Poisson’s ratio show significant patterns and are related to the geological and tectonic structure.
The evaluation of reflected waves from the Moho (SmS) provides a large-scale image of the crust-mantle boundary. The results support the recently proposed model of three plates or plate fragments in the centre of the Eastern Alps. The border of the south-dipping European Moho follows the shape of the Alpine and Carpathian Arcs. In the south, the crust-mantle boundary is separated into a deep Adriatic and a shallow Pannonian Moho along the crest of the External Dinarides. The European Moho collides with the Adriatic Moho west of the southeastern edge of the Tauern Window and underthrusts the Pannonian Moho in the East.

A new Moho map for the European Alpine collision zone

Behm, M.[1], Lippitsch R[2], Kissling, E.[3] & Brückl, E.[1]

[1]Institut für Geodäsie und Geophysik Technische Universität Wien Gusshausstrasse 27-29/1282 A-1040 Wien; [2]ZAMG Abteilung Geophysik Hohe Warte 38 A-1190 Wien; [3]Department of Earth Sciences ETH Hoenggerberg HPP P13 CH-8093 Zürich; mbehm@mail.tuwien.ac.at, Regina.lippitsch@zamg.ac.at, kiss@tomo.ig.erdw.ethz.ch, ebrueckl@mail.tuwien.ac.at

We present a map illustrating the depth of the Moho discontinuity for the European Alpine collision zone compiled from two data sets covering the Western and the Eastern Alps, respectively. While extensive information on crustal structure and Moho depth in the area of the Western Alps has been gathered and presented in previous years, recent seismic refraction experiments focusing on the Eastern Alps now allow to establish a complete map of the Moho depth for the Alpine arc and its surroundings.
Both data sets derive the Moho depth from seismic refraction and reflection data only, but use different methodological approaches to obtain a 3-D image of the interface. With a consistent methodology and quantitative error assignment we control that the two data sets meet the same quality criteria. In the newly compiled map the Moho is represented by the smoothest possible surface passing through the data and their error bars. Vertical offsets are introduced when the curvature of the surface exceeds a certain threshold or where it is strongly indicated by individual data.
The image of the crust-mantle boundary in the Alpine collision zone shows four separate Moho interfaces, namely the European, Adriatic, Pannonian, and Ligurian Moho. Their generation and present-day configuration clearly reflect collision and escape tectonic in the past and reveal the complex geodynamical processes that formed the Alpine Arc. While the Moho structure in the Western Alps mainly reflects the collision of Adriatic and European plate, the situation in the Eastern Alps exhibits both collision and lateral escape characteristics.

Das Lassee Segment der Wiener Becken - Störung als Quelle für das Erdbeben von *Carnuntum* (4. Jhdt. n. Chr.)

Beidinger, A.[1], Decker, K.[1] & Roch, K.-H.[2]