here Stufe der „Sample-Level“. Bei diesen Stufen sind Mittelwerte der gängigsten petrophysikalischen Parameter, sowie deren Unsicherheiten abrufbar. Auf der höchsten und umfangreichsten Genauigkeitsstufe, dem „Specimen-Level“ sind ursprüngliche Messdaten an Einzelproben und deren Messspezifikationen abrufbar.
Alle Daten-Tabellen werden über die Haupttabelle „MAIN“ verknüpft, die die Verbindung zwischen „specimen“, „sample“ und „site“ herstellt. Die gewünschten petrophysikalischen Parameter werden über einen eindeutigen Identifikationscode abgerufen. Metadaten und Kommentare werden dann über entsprechende Verbindungen mit den Genauigkeitsstufen ausgelesen.

Die Österreichische Geophysikalische Gesellschaft

LENHARDT, W.A.

Zentralanstalt für Meteorologie und Geodynamik, Abteilung Geophysik, Hohe Warte 38, A-1190 Wien

Im Frühjahr 2009 hat sich die Österreichische Geophysikalische Gesellschaft konstituiert. Die Gesellschaft hat sich zum Ziel gesetzt, die Geophysik bekannter und das Studium dieses Fachbereichs attraktiver und effektiver zu machen sowie Querverbindungen zu benachbarten Disziplinen, wie Geologie aber auch Bauingenieurwesen, zu fördern. Der Vorstand der Gesellschaft setzt sich aus Vertretern der Industrie und der universitären Forschung zusammen, womit einerseits gewährleistet werden soll, dass sowohl angewandte wie auch wissenschaftliche Themen gleichermaßen gefördert werden und anderseits auch der Vielfalt der Spezialgebiete der Geophysik Rechnung getragen wird. Themen der Potentialtheorie und der Seismologie sind genauso wichtig wie solche aus der Praxis, die von der Rohstoffexploration bis zur zerstörungsfreien Prospektion von archäologischen Artefakten reichen. Gerade durch die Anwendungen lässt sich der Nutzen dieser Disziplin der Erdwissenschaften besonders gut demonstrieren. Dazu kommt die Beobachtung und Vorhersage von Massenbewegungen in Form von Hangrutschungen, Bergstürzen, aber auch die Bestimmung des Zerstörungspotentials von Erdbeben sowie die Fernerkundung von Störungszonen und die Weiterentwicklung von Methoden zur Erkundung von Lagerstätten und Hohlräumen, bis hin zur Erkennung von Grundwasserkontaminationen reicht die Bandbreite der Anwendungen dieser wissenschaftlichen Disziplin und demonstriert damit gleichzeitig ihren essentiellen Beitrag für die Bevölkerung.
Die Gesellschaft, die nun mehr als 60 Mitglieder umfasst, würde sich über neue Mitglieder und Sponsoren freuen, damit neben einer ideellen auch eine finanzielle Förderung von Tagungsbesuchen, Diplomarbeiten etc. für die Mitglieder möglich wird.
Mehr zum Thema findet sich unter der homepage der Gesellschaft www.geophysik.at.

The crystalline basement of the Seewinkel (Burgenland/Austria): Petrological and geochronological data enable a first tectonic correlation

LINNER, M.[1], SCHUSTER, R.[1] & STRAUSS, P.[2]

[1] Geologische Bundesanstalt, Neulinggasse 38, 1030 Wien, Österreich;
[2] OMV, Trabrennstraße 6-8, 1020 Wien, Österreich

During this study cores of six OMV drill-holes reaching the pre-Neogene basement in the Seewinkel area (Burgenland) are investigated. The aim of the study is to get more information on the distribution of the tectonic units in the subsurface of the northwestern corner of the Pannonian basin. This area is of special interest, because it covers the transition of the Austroalpine to the West Carpathian units and the geometry of this transition is not clear until now. The locations of the drill-holes are shown in the map by WESSELY et al. (1993). The cores cover the uppermost 5 to 55 m of the basement below the Karpatian transgressional series between 1200 to 2115 m below the surface. In the area of Halbturn the basement consist of weekly deformed granodiorite gneiss (HALBTURN1) and garnet rich paragneiss (HALBTURN2). Garnet reaches up to 1 cm in diameter and indicates an epidot-amphibolite to amphibolites facies metamorphic imprint. In both rock types biotite exhibit a greenish colour, maybe due to a later overprint. Northwest of Pamhagen fine-grained, garnet-bearing paragneisses of epidote-amphibolite facies metamorphic grade occur (APETLON1, PAMHAGEN2). Biotite in these rocks is brownish coloured, partly replaced by chlorite and intergrown with muscovite. To the east of Pamhagen (PAMHAGEN1, TADTEN1) quartz-rich meta-conglomerates, meta-arcoses, quartzites and quartz-phyllites occur. The rocks are bright coloured and contain no biotite and even no chlorite. They are characterised by a prograde greenschist facies metamorphic imprint. Especially the uppermost parts of the cores exhibit an intense tectonic brecciation with open cracks and idioblastic calcite crystals inside.
A Rb-Sr biotite age determination on greenish biotite from granodiorite gneiss of core HALBTURN1 yielded an Upper Cretaceous cooling age of 86±1 Ma. The gneiss shows a low $^{87}Sr/^{86}Sr$ ratio (0.706153±3) typical for an I-type magmatic rock. The calculated age for biotite from core HALBTURN2 is 28.7±0.3 Ma. However, this value has to be taken with caution because of the low spread in the $^{87}Rb/^{86}Sr$ ratio (26.6) and the high Sr content of biotite (34.6 ppm). For biotite from a paragneiss of core APETLON1 an Upper Cretaceous cooling age of 75.4±0.8 Ma was determined.
Summarising the data large parts pre-Neogene basement of the Seewinkel consists of epidot-amphibolite facies metamorphic rocks with a greenschist facies metamorphic overprint. The age of the epidot-amphibolite facies imprint is not known until now, but most probably it occurred during a pre-Alpine (probably Variscan) event. Due to the Upper Cretaceous cooling ages of biotite the retrograde overprint is related to the eo-Alpine event. With respect to the Oligocene Rb-Sr biotite age it might be possible that

some parts of the basement were exhumed and cooled down during tectonic processes in the Cenozoic. The progade greenschist metamorphic rocks east of Halbturn are located on the eastern side of a fault scarp shown in the map by WESSELY et al. (1993). Based on petrographic characteristics they may represent (Upper Carboniferous?) Permian to Lower Triassic siliziclastic sediments similar to those in the Schladminger and Seckauer Tauern („Rannach Series").
The consistent polymetamorphic history of the investigated rock series allows a
correlation with basement units outcropping in surrounding areas. The basement of the Seewinkel cannot resemble the Tatric unit of the Little Carpathians because the latter is characterised by pre-Alpine cooling ages, indicating less than 300 °C during the Alpine event. The Lower Austroalpine unit in the Leithagebirge shows an intense Alpine phyllonitisation which causes the more or less complete transformation of biotite to chlorite in most of the lithologies. Further there are no lithological similarities. The crystalline rocks of the Ruster Höhenzug and in the area of Jois show variable lithology with frequent biotite. Ar-Ar muscovite and Rb-Sr biotite ages are partly or fully reset during the eo-Alpine event (FRANK et al. 1996). However, no Permo-Triassic sedimentary cover is known from this basement.
In our interpretation the basement of the Seewinkel can be correlated with units of the Silvretta-Seckau nappe system of the Schladminger and Seckauer Tauern, which are overlain by Permian to Lower Triassic clastic sediments with a greenschist facies metamorphic imprint during the eo-Alpine event.

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Luminescence dating at the Upper Palaeolithic site of Krems-Wachtberg, Austria

LOMAX, J.[1], PREUSSER, F.[2], NEUGEBAUER-MARESCH, C.[3], EINWÖGERER, T.[3] & FIEBIG, M.[1]

[1] Institute of Applied Geology, University of Natural Resources and Applied Life Sciences, Peter Jordan Str. 70, A-1190 Vienna; johanna.lomax@boku.ac.at;
[2] Institute of Geological Sciences, University of Bern, Baltzerstr. 1+3, CH-3012 Bern;
[3] Prehistoric Commission of the Austrian Academy of Sciences, Fleischmarkt 22, A-1010 Vienna

The palaeolithic site of Krems-Wachtberg is located at the confluence of the Krems and the Danube in Lower Austria. The excavated section consists of a 9 m thick loess sequence and a well preserved Upper palaeolithic find layer 5 m below the present surface. Due to the discovery of a double-infant burial, the site achieved international attention among archaeologists and Quaternary researchers. The find layer was radiocarbon dated to 31.3±0.3 ka calBP and is placed into the Gravettian period (EINWÖGERER et al. 2006). The loess sequence lacks well developed palaeosols; only embryonic soils are present in places. This suggests more or less continuous loess sedimentation with some short breaks. The site represents an important archive for past climatic change, recorded by the loess sequence, and for the ontogeny of early modern humans, represented by the Gravettian find layer. In order to reconstruct the environmental conditions at the time of human occupation at the site, accurate age estimates of the find layer and the loess sequence are a crucial prerequisite. A secure chronology further allows correlation with other (terrestrial and marine) climatic records and archaeological sites, contributing to a better understanding of past climate change and human dispersal on a broader scale.
Optically and infrared stimulated luminescence (OSL and IRSL) dating is a technique which allows determining sedimentation ages in the range of a few tens of years up to several hundred thousand of years (PREUSSER et al. 2008). Loess is considered ideal for the application of luminescence dating due to its aeolian nature and thus, complete bleaching of the OSL-/IRSL signal during transport. Nevertheless, several problems when OSL-dating loess have been encountered in the past, including low quartz signal intensities, heterogeneity on a microdosimetric scale, and age underestimation of the feldspar fraction due to anomalous fading (for a recent review, see ROBERTS 2008).
Several strategies were applied to obtain a reliable luminescence chronology of the loess sequence. First, a very narrow spaced sampling resolution of ~20 cm was used in order to provide internal control on the consistency of the chronosequence. Second, both the quartz and the feldspar fraction were dated, which enables a further internal check on the reliability of ages and the causes of dose variations. For example, a significantly higher quartz age compared to the feldspar age may be the result of anomalous fading of the feldspar fraction. A much higher scatter in the quartz palaeodose distribution compared to the feldspar distribution might be caused by low quartz signal intensities or/and by microdosimetric heterogeneity. Furthermore, fading tests following RUFER et al. (unpublished) were carried out on selected samples.
The resulting luminescence ages range from ~18 to 45 ka and are in correct stratigraphic order for both the quartz and the feldspar fraction, providing some confidence in their reliability. However, the feldspar ages underestimate the quartz ages by around 20 to 30 %. Preliminary fading tests showed that the feldspar age underestimation is most likely caused by signal fading of this mineral fraction. Further test are needed though for a reliable fading correction. The quartz fraction exhibited high palaeodose variations, whereas the feldspar fraction showed only minimal scatter in palaeodoses. This confirms the well bleached and un-mixed nature of the loess. The quartz palaeodose variations are most likely caused by microdosimetric heterogeneity, poor counting statistics and varying luminescence properties. The luminescence ages