700 km² für die kinematisch verbundenen Abschiebungen) zeigen, dass an den Segmenten der Seitenverschiebung und an den Abschiebungen Erdbeben mit Magnituden von etwa Mw = 6.1 bis 6.8 möglich sind.

Early Miocene reconstruction of thrusting at the leading edge of the East-Alpine fold-thrust-belt in the Alpine - Carpathian transition area.

BEIDINGER, A[1], DECKER, K[1], ZAMOLYI, A.[2,3] & STRAUSS, P.[2]
[1] Department of Geodynamics and Sedimentology, University of Vienna
[2] OMV Exploration & Production GmbH, Vienna
[3] Department of Geophysics and Space Sciences, Eötvös University, Budapest, Hungary

The reconstruction of Early Miocene positions of major thrusts at the leading edge of the East-Alpine fold-thrust-belt is achieved by integration of well data, 2D seismics and geological maps. Crucial information is obtained from 65 wells distributed over a length of approximately 300 km between Upper Austria and the Vienna Basin. Borehole data are supplemented by six cross-sections. Reconstructions are provided for four thrust molasse units, for the floor thrust of the Rhenodanubian Flysch units, and for the Northern Calcareous Alps for five Early Miocene time-steps. Resulting palinspastic maps depict an apparent counter-clockwise rotation of the Alpine thrust front during the Early Miocene. This rotation is a result of the continuous spatio-temporal cessation of in-sequence thrusting from W to E. While appreciable frontal post-Egerian shortening is not evident in Upper Austria, foreland-propagating thrusting in the Vienna Basin area continues until the late Karpatian. The total amount of Early Miocene minimum shortening estimated in the Vienna Basin area is c. 50 km (c. 26-16 Ma). We propose that Early Miocene missing in-sequence shortening W of the Vienna Basin is at least partly accommodated by out-of-sequence thrusting within the Rhenodanubic Flysch units. There, tectonic windows are highlighted as out-of-sequence thrusts, which are situated in a comparable structural position as well dated late Karpatian out-of-sequence thrusts in the Vienna Basin subcrop

Seismic Anisotropy Across the Plate Boundary in the Eastern Alps

BIANCHI, I. & BOKELMANN, G.
Institut für Meteorologie und Geophysik, Universität Wien

The type of collision between the European and the Adriatic plates in the easternmost portion of the Alps is one the most interesting questions regarding the Alpine evolution. We investigate the structure in the Eastern Alps, where the crustal thickness has been poorly investigated by passive seismic methods in the past. Thanks to the availability of data from a temporary seismic network (ALPASS) and together with the Austrian permanent network, details about the crustal structure in this area are emerging. A Receiver Function data-set has been created to detect the depth of the Moho interface along a N-S profile from the Bohemian Massif to the Adriatic Sea, crucial for understanding the dynamics of the easternmost portion of the Alps. We observe a seismically anisotropic layer on top of the Adriatic Moho. This layer continues from the Adriatic Sea to one of the major tectonic lines of the area, the SEMP fault, opening new questions on the deep plate boundary between Adria and Europe.

Structure of the Vienna Basin by analysis of passive seismic data

BIANCHI, I. & BOKELMANN, G.
Institut für Meteorologie und Geophysik, Universität Wien

The analysis of passive seismic data leads to a deeper understanding of the Vienna basin features in those areas that have been less explored via direct drilling or active seismology.
Here we present some examples from stations located in the Vienna basin, on the horst structures and in the deep depocenters, which characterize the sedimentary basin.
The technique used for understanding of the basin is the Receiver Functions (RF) technique; it allows highlighting the presence of impedance contrasts at depth, which are caused by lithology changes.

Preliminary analysis of the high frequency (4Hz) RF data-sets, shows the presence of several phases related to the Quaternary and Tertiary basins. The comparison between results from RFs with geological sections shows a good correlation. On the Ostrandscholle horst (in the southern portion of basin), a thick (~1.5 km) sedimentary layer overlying a thinner (~1 km) limestone layer, is detected. Seismic anisotropy is recognized around the interface between sediments and limestones; the anisotropy is NE directed reflecting the NE alignment of the strike-slip fault system, which characterizes the area. The comparison of passive seismology with direct exploration improves the knowledge of the subsurface and adds new constraints on its geodynamical interpretation.

Acesulfam als Abwasserindikator in einem oberflächennahen Porengrundwasserkörper

BICHLER, A., MÜLLEGGER, C. & HOFMANN, T.
Universität Wien, Department für Umweltgeowissenschaften

Künstliche Süßstoffe finden als Zuckersubstitute in Getränken, Lebensmitteln und Hygieneartikel weite Verbreitung. Sie werden in beträchtlichen Mengen konsumiert und größtenteils unverändert über den Urin ausgeschieden. Acesulfam, als einer ihrer Vertreter, zeichnet sich durch hohe Persistenz gegen den Abbau in der Abwasserreinigung und große Mobilität in Oberflächen- und Grundwasser aus. Da diese Substanz auch im ng/L Bereich nachgewiesen werden kann, erfüllt Acesulfam alle Anforderungen an einen idealen Tracer für kommunale Abwässer in der aquatischen Umwelt.
In einem quartären Grundwasserkörper, der auch zur Trinkwasserversorgung genutzt wird, konnte Acesulfam in Konzentrationen von bis zu 80 ng/L nachgewiesen werden. Im Rahmen einer Beprobung des gesamten Gewässersystems konnte als punktuelle Quelle die örtliche Kläranlage bestätigt werden. Der Eintrag in den Aquifer erfolgt über Infiltration von abwasserbeeinflusstem Flusswasser.
Mögliche Infiltrationsbereiche wurden anhand einer flächenhaften Beprobung des Grundwasserkörpers identifiziert. Die vorhandenen Konzentrationen erlauben ebenso eine mengenmäßige Abschätzung des Uferfiltrates im Grundwasserkörper als auch Rückschlüsse auf die Zuströmverhältnisse.

Landscape evolution north of the Sonnblick (Salzburg/Austria) during the last 21 ka

BICHLER, M.,[1] REINDL M.,[1] HÄUSLER, H.,[1] REITNER J.M.,[2] IVY-OCHS, S.[3]
[1] Department of Environmental Geosciences, University of Vienna, Austria,
[2] Geological Survey of Austria
[3] Labor für Ionenstrahlphysik (LIP), ETH Zürich, Schafmattstr. 20, 8093 Zürich, Switzerland

The study area north of the Sonnblick peak offers a great opportunity to observe cross-cutting relationships of landscape forming events (glacial advances, glacial retreats and mass movements) since the Last Glacial Maximum. We achieved absolute geochronological data by surface exposure dating with the cosmogenic nuclide 10Be and by 14C dating of the base layers of peat as well as relative geochronological data using the Schmidt-Hammer method. In addition palynological information is gained from bog drill cores. In combination with a detailed geological and geomorphological map, we will reconstruct glacial chronology and landscape evolution of the study area between 21 ka BP and 1850. Especially the relation to other inner-alpine areas, which have been object of palaeoclimate research, and the comparison to Holocene stratigraphy based on high resolution climate archives in the North Atlantic region, is of great interest.