

## References

- Achauer, U., J. Plomerová, V. Babuška, L. Vecsey, M. Granet, and BOHEMA working group (2005), Upper mantle structure in the western Bohemian Massif – results of isotropic tomography and seismic anisotropy (BOHEMA project), *Geophys. Res. Abstracts*, 7, 04262.
- Akaogi, M., A. Tanaka, and E. Ito (2002), Garnet-ilmenite-perovskite transitions in the system  $Mg_4Si_4O_{12}$ - $Mg_3Al_2Si_3O_{12}$  at high pressures and high temperatures: phase equilibria, calorimetry and implications for mantle structure, *Phys. Earth Planet. Inter.*, 132, 303-324.
- Anderson, D.L. (1989), *Theory of the Earth*, Blackwell Scientific, Boston, Massachusetts.
- Anderson, D.L. (1995), Lithosphere, asthenosphere, and perisphere, *Rev. Geophys.*, 33 (1), 125-149, 94RG-02785.
- Artemieva, I.M. (2003), Lithospheric structure, composition, and thermal regime of the East European Craton: implications for the subsidence of the Russian platform. *Earth Planet. Sci. Lett.*, 213, 431-446.
- Babuška, V., and J. Plomerová (1992), The lithosphere in central Europe – seismological and petrological aspects, *Tectonophysics*, 207, 141-163.
- Babuška, V., and J. Plomerová (1993), Lithosphere thickness and velocity anisotropy – seismological and geothermal aspects, *Tectonophysics*, 225, 79-89.
- Babuška, V., and J. Plomerová (2001), Subcrustal lithosphere around the Saxothuringian-Moldanubian Suture Zone – a model derived from anisotropy of seismic wave velocities, *Tectonophysics*, 332, 185-199.
- Babuška, V. J. Plomerová, and the BOHEMA working group (2003), Seismic Experiment Searches for Active Magmatic Source in Deep Lithosphere, Central Europe, *EOS, Trans. AGU*, 84 (40), 409-418.
- Bankwitz, P., G. Schneider, H. Kämpf, and E. Bankwitz (2003), Structural characteristics of epicentral areas in Central Europe: study case Cheb Basin (Czech Republic), *J. Geodyn.*, 35, 5-32.
- Barrell, J. (1914), The strength of the Earth's crust, *Journal of Geology*, 22, 28-48.
- Báth, M., and R. Stefánsson (1966), S-P conversions at the base of the crust, *Ann. Geofis.*, 19, 119-130.
- Behr, H.-J., and T. Heinrichs (1987), Geological interpretation of DEKORP 2-S: a deep seismic reflection profile across the Saxothuringian and possible implications for the late Variscan structural evolution of central Europe, *Tectonophysics*, 142, 173-202.
- Behr, H.-J., H.-J. Dürbaum, and P. Bankwitz (1994), Crustal structure of the Saxothuringian zone: results of the deep seismic profile MVE-90(East), *Z. Geol. Wiss.*, 22(6), 647-769.
- Behrmann, J.H., and D.C. Tanner (1997), Carboniferous tectonics of the Variscan basement collage in eastern Bavaria and western Bohemia, *Geol. Rundschau*, 86, 15-27.
- Benz, H.M., and J.E. Vidale (1993), Sharpness of upper-mantle discontinuities determined from high-frequency reflections, *Nature*, 365, 147-150.
- Bercovici, D., and S.-I. Karato (2003), Whole-mantle convection and the transition-zone water filter, *Nature*, 425, 39-44.
- Bina, C.R., and G.R. Helffrich (1994), Phase transition Clapeyron slopes and transition zone seismic discontinuity topography, *J. Geophys. Res.*, 99, 15 853-15 860.

## REFERENCES

- Bleibinhaus, F., D. Stich, M. Simon, and H. Gebrande (2003), New results from amplitude preserving prestack depth migration of the Münchberg/Vogtland segment of the MVE deep seismic survey, *J. Geodyn.*, *35*, 33-43.
- Bock, G. and R. Kind (1991), A global study of S-to-P and P-to-S conversions from the upper mantle transition zone, *Geophys. J. Int.*, *107*, 117-129.
- Bock, G. (1994), Synthetic seismogram images of upper mantle structure: No evidence for a 520-km discontinuity, *J. Geophys. Res.*, *99*, 15 843-15 851.
- Bräuer, K., H. Kämpf, G. Strauch, and S.M. Weise (2003), Isotopic evidence ( $^3\text{He}/^4\text{He}$ ,  $^{13}\text{C}_{\text{CO}_2}$ ) of fluid-triggered intraplate seismicity, *J. Geophys. Res.*, *108*(B2), 2070, doi:10.1029/2002JB002077.
- Bräuer, K., H. Kämpf, S. Niedermann, G. Strauch and S.M. Weise (2004), Evidence for a nitrogen flux directly derived from the European subcontinental mantle in the western Eger Rift, Central Europe, *Geochim. Cosmochim. Acta*, *68*, 4935-4947.
- Bräuer, K., H. Kämpf, S. Niedermann, and G. Strauch (2005): Evidence for ascending upper mantle-derived melt beneath the Cheb basin, central Europe, *Geophys. Res. Lett.*, *32*, L08303, doi:10.1029/2004GL022205, 2005.
- Bues, C., W. Dörr, J. Fiala, Z. Vejnar, and G. Zulauf (2002), Emplacement depth and radiometric ages of Paleozoic plutons of the Neukirchen-Kdyne massif: Differential uplift and exhumation of Cadomian basement due to Carboniferous orogenic collapse (Bohemian Massif), *Tectonophysics*, *352*, 225-243.
- Burdick, L.J., and C.A. Langston (1977), Modeling crustal structure through the use of converted phases in teleseismic body-wave forms, *Bull. Seism. Soc. Am.*, *67*, 677-691.
- Castle, J.C., and K.C. Creager (2000), Local sharpness and shear wave speed jump across the 660-km discontinuity, *J. Geophys. Res.*, *105*, 6191-6200.
- Christensen, N.I. (1996), Poisson's ratio and crustal seismology, *J. Geophys. Res.*, *101*(B2), 3139-3156.
- Credner, H. (1900), Die vogtländischen Erdbebenschwärme während des Juli und August 1900, *Ber. Ü. Verh. Kgl. Sächs. Ges. Wiss. Leipzig, Math-phys. Kl.* *52*, 153-177.
- Čermák, V. (1994), Results of Heat Flow Studies in Czechoslovakia, in *Crustal Structure of the Bohemian Massif and the West Carpathians* Bucha, edited by V. and M. Blížkovský, Springer Verlag Berlin Heidelberg New York.
- Cummins, P., B.L.N. Kennett, J.R. Bowman, and M. Bostock (1992), The 520 km discontinuity?, *Bull. Seismol. Soc. Am.*, *82*, 323-336.
- Dallmeyer, R.D, W. Franke, K. Weber (Eds.) (1995), *Pre-Permian Geology of Central and Eastern Europe*, Springer-Verlag Berlin Heidelberg New York.
- Dahm, T., J. Horálek, and J. Šílený (2000), Comparison of absolute and relative moment tensor solutions for the January 1997 West Bohemia earthquake swarm, *Studia geophys. et geod.*, *44*(2), 233-250.
- DEKORP Research Group (1985), First results and preliminary interpretation of deep-reflection seismic recordings along profile DEKORP 2-South, *J. Geophys.*, *57*, 137-163.
- DEKORP Research Group (1988), Results of the DEKORP 4/KTB Oberpfalz deep seismic reflection investigations, *J. Geophys.*, *62*, 69-101.
- DEKORP Research Group (1994), The deep reflection seismic profiles DEKORP 3/MVE 90, *Z. Geol. Wiss.*, *22*(6), 623-824.
- Deuss, A., and J.H. Woodhouse (2001), Seismic Observation of Splitting of the Mid-Transition Zone Discontinuity in Earth's Mantle, *Science*, *294*, 354-357.
- Dèzes, P., and P.A. Ziegler (2001), European map of the Mohorovičić discontinuity. 2<sup>nd</sup> EUCOR-URGENT Workshop (Upper Rhinegraben Evolution and Neotectonics), Mt. St. Odile, France. <http://compl.geol.unibas.ch>.

- Dèzes, P., S.M. Schmidt, and P.A. Ziegler (2004), Evolution of the European Cenozoic Rift System: Interaction of the Alpine and Pyrenean orogens with their foreland lithosphere, *Tectonophysics*, *389*, 1-33.
- Dörr, W., G. Zulauf, J. Fiala, W. Franke, and Z. Vejnar (2002), Neoproterozoic to Early Cambrian history of an active plate margin in the Teplá-Barrandian unit – a correlation of U-Pb isotopic-dilution-TIMS ages (Bohemia, Czech Republic), *Tectonophysics*, *352*, 65-85.
- Emmermann, R., and J. Lauterjung (1997), The German continental deep drilling program KTB: Overview and major results, *J. Geophys. Res.*, *102(B8)*, 18 179-18 201.
- Enderle, U., K. Schuster, C. Prodehl, A. Schulze, and J. Briebach (1998), The refraction seismic experiment GRANU'95 in the Saxothuringian belt, southeastern Germany, *Geophys. J. Int.*, *133*, 245-259.
- ERCEUGT-Group, 1992, An electrical resistivity crustal section from the Alps to the Baltic Sea (central segment of the EGT), *Tectonophysics*, *207*, 123-139.
- Faber, S., and G. Müller (1980), Sp phases from the transition zone between the upper and lower mantle, *Bull. Seism. Soc. Am.*, *70*, 487-508.
- Faber, S., J. Plomerová, and V. Babuška (1986), Deep-seated lateral variations beneath the GRF array inferred from mislocation patterns and P residuals, *J. Geophys.*, *60*, 139-148.
- Farra, V., and L. Vinnik (2000), Upper mantle stratification by P and S receiver functions, *Geophys. J. Int.*, *141*, 699-712.
- Fischer, T. (2003), The August-December 2000 earthquake swarm in NW Bohemia: the first results based on automatic processing of seismograms, *J. Geodyn.*, *35*, 59-81.
- Fischer, T., and J. Horálek (2003), Space-time distribution of earthquake swarms in the principal focal zone of the NW Bohemia/Vogtland seismoactive region: period 1985-2001, *J. Geodyn.*, *35*, 125-144.
- Fischer, T., and J. Horálek (2005), Slip-generated patterns of swarm microearthquakes from West Bohemia/Vogtland (central Europe): Evidence of their triggering mechanism?, *J. Geophys. Res.*, *110*, B05S21, doi:10.1029/2004JB003363.
- Flanagan, M.P., and P.M. Shearer (1998a), Global mapping of topography on transition zone velocity discontinuities by stacking SS precursors, *J. Geophys. Res.*, *103*, 2673-2692.
- Flanagan, M.P., and P.M. Shearer (1998b), Topography on the 410 km seismic velocity discontinuity near subduction zones from stacking of sS, sP and pP precursors, *J. Geophys. Res.*, *103*, 21 165-21 182.
- Förster, A., and H.-J. Förster (2000), Crustal composition and mantle heat flow: Implications from surface heat flow and radiogenic heat production in the Variscan Erzgebirge (Germany), *J. Geophys. Res.*, *105(B12)*, 27 917-27 938.
- Franke, W. (1989), The geological framework of the KTB drill site, Oberpfalz, in *The German Continental Deep Drilling Program (KTB)*, edited by R. Emmermann, R. and J. Wohlenberg, pp. 37-55, Springer, Heidelberg.
- Franke, W. (1992), Phanerozoic structures and events in Central Europe, in *A continent revealed: the European Geotraverse*, edited by D. Blundell et al., pp. 164-179, Cambridge Univ. Press, Cambridge.
- Franke, W., R.D. Dallmeyer, and K. Weber (1995), Geodynamic evolution, in *Pre-Permian Geology of Central and Western Europe*, edited by D. Dallmeyer, pp. 579-593, Springer-Verlag Berlin Heidelberg New York.
- Franke, W. (2000), The mid-European segment of the Variscides: tectonostratigraphic units, terrane boundaries and plate tectonic evolution, in *Orogenic processes:*

## REFERENCES

- Quantification and Modelling in the Variscan Belt*, edited by W. Franke et al., pp. 35-61, No. 179, The Geological Society, London.
- Freudenberger, W. (1996), Tektonik. Deckgebirge nördlich der Donau. in *Bayerisches Geologisches Landesamt. Geologische Karte von Bayern, 1:500000*, München.
- Gaherty, J.B., M. Kato, and T.H. Jordan (1999), Seismological structure of the upper mantle: a regional comparison of seismic layering, *Phys. Earth Planet. Inter.*, *110*, 21-41.
- Geissler, W.H. (2004), Seismic and Petrological Investigations of the Lithosphere in the Swarm-Earthquake and CO<sub>2</sub> Degassing Region Vogtland/NW-Bohemia, *Doctoral Thesis*, Free University of Berlin.
- Geissler, W.H., H. Kämpf, R. Kind, K. Bräuer, K. Klinge, T. Plenefisch, J. Horálek, J. Zedník, and V. Nehybka (2005), Seismic structure and location of a CO<sub>2</sub> source in the upper mantle of the western Eger (Ohře) Rift, central Europe, *Tectonics*, *24*, TC5001, doi:10.1029/2004TC001672.
- Geissler, W.H., H. Kämpf, W. Seifert, and P. Dulski (2006), Petrological and seismic studies of the lithosphere in the earthquake swarm region Vogtland/NW-Bohemia, Central Europe, *Journal of Volcanology and Geothermal Research*, in press.
- Giese, P. (1995), Main Features of Geophysical Structures in Central Europe, in *Pre-Permian Geology of Central and Western Europe*, edited by D. Dallmeyer, pp. 7-26, Springer-Verlag Berlin Heidelberg New York.
- Gilbert, H.J., A.F. Sheehan, K.G. Dueker, and P. Molnar (2003), Receiver functions in the western United States, with implications for upper mantle structure and dynamics, *J. Geophys. Res.*, *109*, doi:10.1029/2001JB001194.
- Gossler, J., and R. Kind (1996), Seismic evidence for very deep roots of continents, *Earth Planet. Sci. Lett.*, *138*, 1-13.
- Granet, M., M. Wilson, and U. Achauer (1995), Imaging a mantle plume beneath the Massif Central (France), *Earth Planet. Sci. Lett.*, *136*, 281-296.
- Griesshaber, E., R.K. O’Nions, and E.R. Oxburgh (1992), Helium and carbon isotope systematics in crustal fluids from the Eifel, the Rhine Graben and Black Forest, F.R.G., *Chem. Geol.*, *99*, 213-235.
- Grosse, S., W. Conrad, H.J. Behr, and T. Heinrichs (1990), Major gravity axis and anomalies in central Europe, in *Proc. 5<sup>th</sup> EGT Study Centre*, edited by R. Freeman et al., pp. 35-146, European Science Foundation, Strasbourg.
- Grünthal, G. (1989), About the history of earthquake activity in the focal region Vogtland/Western Bohemia, in *Monitoring and Analysis of the Earthquake Swarm 1985/1986 in the Region Vogtland/Western Bohemia*, edited by P. Bormann, pp. 30-34, Akad. der Wissensch. der DDR, Potsdam.
- Grunewald, S., M. Weber, and R. Kind (2001), The upper mantle under Central Europe: indications for the Eifel plume, *Geophys. J. Int.*, *147*, 590-601.
- Gu, Y., A.M. Dziewonski, and C.B. Agee (1998), Global de-correlation of the topography of transition zone discontinuities, *Earth Planet. Sci. Lett.*, *157*, 57-67.
- Gu, Y., A.M. Dziewonski, and G. Ekström (2003), Simultaneous inversion for mantle shear velocity and topography of transition zone discontinuities, *Geophys. J. Int.*, *154*, 559-583.
- Gung, Y., M. Panning, and B. Romanowicz (2003), Global anisotropy and the thickness of continents, *Nature*, *422*, 707-711.
- Gutenberg, B. (1926), Untersuchungen zur Frage bis zu welcher Tiefe die Erde kristallin ist, *Z. Geophys.*, *2*, 24-29.
- Gutenberg, B. (1959), *Physics of the Earth’s Interior*, 240pp, Academic Press, New York.
- Hainzl, S. (2003), Self-organization of earthquake swarms, *J. Geodyn.*, *35*, 157-172.

- Heinicke, J., and U. Koch (2000), Slug flow – a possible explanation for hydrogeochemical earthquake precursors at Bad Brambach, Germany, *Pure Appl. Geophys.*, *157*(10), 1621-1641.
- Helfrich, G.R. (2000), The Earth's mantle, *Rev. Geophys.*, *38*, 141-158.
- Helfrich, G.R., and B.J. Wood (2001), The Earth's mantle, *Nature*, *412*, 501-507.
- Hemmann, A., T. Meier, G. Jentzsch, and A. Ziegert (2003), Similarity of waveforms and relative relocalisation of the earthquake swarm 1997/1998 near Werdau, *J. Geodyn.*, *35*, 191-208.
- Heuer, B., W.H. Geissler, R. Kind, and H. Kämpf (2006), Seismic evidence for asthenospheric updoming beneath the western Bohemian Massif, central Europe, *Geophys. Res. Lett.*, *33*, L05311, doi:10.1029/2005GL025158.
- Hill, D.P. (1977), A model for earthquake swarms, *J. Geophys. Res.*, *82*, 1347-1352.
- Hill, D.P. and S. Prejean (2005), Magmatic unrest beneath Mammoth Mountain, California, *Journal of Volcanology and Geothermal Research*, *146*, 257-283.
- Hirth, G., Evans, R.L., and A.D. Chave (2000), Comparison of continental and oceanic mantle electrical conductivity: Is the Archean lithosphere dry? *Geochem. Geophys. Geosyst.*, *1*, 2000GC00048.
- Hirth, G. and D.L. Kohlstedt (1996), Water in the oceanic upper mantle: implications for rheology, melt extraction and the evolution of the lithosphere, *Earth Planet. Sci. Lett.*, *144*, 93-108.
- Hjelt, S.-E. (1991), Geoelectric studies and conductivity structures of the eastern and northern parts of the Baltic Shield, *Tectonophysics*, *189*, 249-260.
- Hofmann, Y., T. Jahr, and G. Jentzsch (2003), Three-dimensional gravimetric modelling to detect the deep structure of the region Vogtland/NW-Bohemia, *J. Geodyn.*, *35*, 209-220.
- Hofstetter, R., and G. Bock (2004), Shear-wave velocity structure of the Sinai sub-plate from receiver function analysis, *Geophys. J. Int.*, *158*, 67-84.
- Horálek, J., T. Fischer, A. Boušková, P. Jedlička (2000a), Western Bohemia/Vogtland region in the light of the WEBNET network, *Studia geophys. et geod.*, *44*, 107-125.
- Horálek, J., J. Šílený, T. Fischer, A. Slancová, and A. Boušková (2000b), The scenario of the January 1997 West Bohemia Earthquake Swarm, *Studia geophys. et geod.*, *44*(4), 491-521.
- Hrubcová, P., P. Šroda, A. Špičák, A. Guterch, M. Grad, R. Keller, E. Brückl and H. Thybo (2005), Crustal and uppermost mantle structure of the Bohemian Massif based on CELEBRATION 2000 data, *J. Geophys. Res.*, *110*, B11305, doi:10.1029/2004JB003080.
- Huang, X., Y. Xu, and S.-I. Karato (2005), Water content in the transition zone from electrical conductivity of wadsleyite and ringwoodite, *Nature*, *434*, 746-749.
- Isaacs, B., J. Oliver, and L.R. Sykes (1968), Seismology and the new global tectonics, *J. Geophys. Res.*, *73*, 5855-5899.
- Ibs-von Seht, M., K. Klinge, and T. Plenefisch (2006), Seismicity of intracontinental swarm earthquake areas – a comparison of selected cases in America, Africa and Europe, *IASPEI Publ. Series for the IDNDR*, Beijing, in press.
- Jeffreys, H. (1936), The structure of the earth down to the 20° discontinuity, *Monthly Notices of the Royal Astronomical Society, Geophysical Supplement*, *3*(9), 401-422.
- Jones, A.G. (1982), Observations of the electrical asthenosphere beneath Scandinavia, *Tectonophysics*, *90*, 37-55.
- Jones, A.G. (1999), Imaging the continental upper mantle using electromagnetic methods, *Lithos*, *48*, 57-80.

## REFERENCES

- Kämpf, H., K. Bräuer, G. Strauch, and S.M. Weise (1999), Indications for an Active Magma Chamber in the Upper Mantle Below the Western Eger Graben, Czech Republic, *EOS, Spring Meeting*, V52A-03 (abstract).
- Karato, S.-I., and H. Jung (1998), Water, partial melting and the origin of the seismic low velocity and high attenuation zone in the upper mantle, *Earth Planet. Sci. Lett.*, *157*, 193-207.
- Kárník, V., Z. Schenková, and V. Schenk (1986), Time pattern of the swarm of December 1985-March 1986 in West Bohemia, in *Earthquake swarm 1985/86 in Western Bohemia*, edited by D. Procházková, pp. 328-342, Geophys. Inst. Czechosl. Acad. Sci., Praha.
- Kennett, B.L.N. (1991), *IASPEI 1991 Seismological Tables*, 167 pp., Research School of Earth Sciences, Australian National University, Canberra.
- Kennett, B.L.N., and E.R. Engdahl (1991), Travel times for global earthquake location and phase identification, *Geophys. J. Int.*, *105*, 429-465.
- Kind, R., and L.P. Vinnik (1988), The upper-mantle discontinuities underneath the GRF array from P-to-S converted phases, *J. Geophys.*, *62*, 138-147.
- Kind, R., G.L. Kosarev, and N.V. Petersen (1995), Receiver functions at the stations of the German Regional Seismic Network (GRSN), *Geophys. Journ. Int.*, *121*, 191-202.
- Kind, R., X. Yuan, J. Saul, D. Nelson, S.V. Sobolev, J. Mechie, W. Zhao, G. Kosarev, J. Ni, U. Achauer, and M. Jiang (2002), Seismic images of crust and upper mantle beneath Tibet: Evidence for Eurasian plate subduction, *Science*, *298*, 1219-1221.
- King, S.D. and J. Ritsema (2000), African hot spot volcanism: small scale convection in the upper mantle beneath cratons, *Science*, *290*, 1137-1140.
- Knett, J. (1899), Das Erzgebirgische Schwarmbeben zu Hartenberg vom 1. Jänner bis Feber 1824, *Sitzungsber. Deutsch. Naturwiss.-med. Ver. Böhmen, Lotos Prag N.F.*, *19*, 167-191.
- Koch, U., J. Heinicke, and M. Voßberg (2003), Hydrogeological effects of the latest Vogtland-NW Bohemian swarmquake period (August to December 2000), *J. Geodyn.*, *35*, 107-123.
- Kopecký, L. (1978), Neoidic taphrogenic evolution and young alkaline volcanism of the Bohemian Massif, *Sbor. geol. Ved. R. Geol.*, *26*, 91-107.
- Kosarev, G.L., N.V. Petersen, L.P. Vinnik, and S.W. Roecker (1993), Receiver function for the Tien Shan analog broadband network: contrast in the evolution of structure across the Talasso-Fargana fault, *J. Geophys. Res.*, *98*, 4437-4448.
- Kosarev, G., R. Kind, S.V. Sobolev, X. Yuan, W. Hanka, and S. Oreshin (1999), Seismic evidence for a detached Indian lithospheric mantle beneath Tibet, *Science*, *283*, 1306-1309.
- Kumar, P., X. Yuan, R. Kind, and G. Kosarev (2005a), The lithosphere-asthenosphere boundary in the Tien Shan-Karakoram region from S receiver functions: Evidence for continental subduction, *Geophys. Res. Lett.*, *32*, L07305, doi:10.1029/2004GL022291.
- Kumar, P., R. Kind, W. Hanka, K. Wylegalla, Ch. Reigber, X. Yuan, I. Wölbern, P. Schwintzer, K. Fleming, T. Dahl-Jensen, T.B. Larsen, J. Schweitzer, K. Priestley, O. Gudmundsson, and D. Wolf (2005b), The lithosphere-asthenosphere boundary in the North-West Atlantic region, *Earth Planet. Sci. Lett.*, *236*, 249-257, doi:10.1016/j.epsl.2005.05.029.
- Kumar, P., X. Yuan, R. Kind, and J. Ni (2006), Imaging the colliding Indian and Asian lithospheric plates beneath Tibet, *J. Geophys. Res.*, *111*, B06308, doi:10.1029/2005JB003930.
- Langston, C.A. (1979), Structure under Mount Rainier, Washington, inferred from teleseismic body waves, *J. Geophys. Res.*, *84*, 4749-4762.

- Lay, T., and T.C. Wallace (1995), *Modern Global Seismology*, Academic Press, New York.
- Lebedev, S., S. Chevrot, and R.D. van der Hilst (2002), Seismic Evidence for Olivine Phase Changes at the 410- and 660-Kilometer Discontinuities, *Science*, *296*, 1300-1302.
- Lehmann, I. (1961), S and the structure of the upper mantle, *Geophysical Journal, London*, *4*, 124-138.
- Lehmann, I. (1964), On the velocity of P in the upper mantle, *Bull. Seismol. Soc. Am.*, *54*, 1097-1103.
- Li, S., R. Kind, K. Priestley, S.V. Sobolev, F. Tilmann, X. Yuan, and M. Weber (2000), Mapping the Hawaiian plume conduit with converted seismic waves, *Nature*, *405*, 938-941.
- Li, X., R. Kind, and X. Yuan (2003a), Seismic study of upper mantle and transition zone beneath hotspots, *Phys. Earth Planet. Inter.*, *136*, 79-92.
- Li, X., R. Kind, X. Yuan, S.V. Sobolev, W. Hanka, D.S. Ramesh, Y. Gu, and A.M. Dziewonski (2003b), Seismic observation of narrow plumes in the oceanic upper mantle, *Geophys. Res. Lett.*, *30*, doi:10.1029/2002GL015411.
- Li, X., R. Kind, X. Yuan, I. Wölbern, and W. Hanka (2004), Rejuvenation of the lithosphere by the Hawaiian plume, *Nature*, *427*, 827-829.
- Matte, P. (1986), Tectonics and plate tectonics model for the Variscan belt of Europe, *Tectonophysics*, *126*, 329-374.
- Matte, P., H. Maluski, P. Rajlich, and W. Franke (1990), Terrane boundaries in the Bohemian Massif: results of large-scale Variscan shearing, *Tectonophysics*, *177*, 151-170.
- Matte, P. (1991), Accretionary history and crustal evolution of the Variscan belt in Western Europe, *Tectonophysics*, *196*, 309-337.
- Matte, P. (2001), The Variscan collage and orogeny (480-290 Ma) and the tectonic definition of the Armorica microplate: a review, *Terra Nova*, *13*, 122-128.
- Matthews, A., C. Fouillac, R. Hill, R.K. O'Nions, and E.R. Oxburgh (1987), Mantle-derived volatiles in continental crust: The Massif Central of France, *Earth Planet. Sci. Lett.*, *85*, 117-128.
- May, F. (2002), *Quantifizierung des CO<sub>2</sub>-Flusses zur Abbildung magmatischer Prozesse im Untergrund der Westeifel*, 170pp, Shaker Verlag, Aachen.
- McKenzie, D., and M.J. Bickle (1988), The volume and composition of melt generated by extension of the lithosphere, *J. Petrol.*, *29*, 625-679.
- Mechie, J., K. Abu-Ayyash, Z. Ben-Avraham, R. El-Kelani, A. Mohsen, G. Rümpker, J. Saul, and M. Weber (2005), Crustal Shear velocity structure across the Dead Sea Transform from two-dimensional modelling of DESERT project explosion seismic data, *Geophys. J. Int.*, *160*, 910-924, doi:10.1111/j.1365-246X.2005.02526.x.
- Mogi, K. (1963), Some discussions on aftershocks, foreshocks and earthquake swarms – the fracture of a semi finite body caused by an inner stress origin and its relation to the earthquake phenomena, *Bull. Earthquake Res. Inst.*, *41*, 615-658.
- Mohorovičić, A. (1910), Earthquake of 8 October 1909, *Yearly report of the Zagreb meteorological observatory for the year 1909*, 63pp, English translation: *Geofizika*, *9*, 3-55, 1992.
- Mohsen, A., R. Hofstetter, G. Bock, R. Kind, M. Weber, K. Wylegalla, G. Rümpker, and the DESERT Group (2005), A receiver function study across the Dead Sea Transform, *Geophys. J. Int.*, *160*, 948-960, doi:10.1111/j.1365-246X.2005.02534.x.
- Neunhöfer, H., and T. Meier (2004), Seismicity in the Vogtland/Western Bohemia earthquake region between 1962 and 1998, *Studia geophys. et geod.*, *48*, 539-562.

## REFERENCES

- Neunhöfer, H., and A. Hemmann (2005), Earthquake swarms in the Vogtland/Western Bohemia region: Spatial distribution and magnitude-frequency distribution as an indication of the genesis of swarms?, *J. Geodyn.*, 39(4), 361-385, doi:10.1016/j.jog.2005.01.004.
- Niazi, M. and D.L. Anderson (1965), Upper mantle structure of western North America from apparent velocities of P waves, *J. Geophys. Res.*, 70, 4633-4640.
- Nolet, G., and A. Zielhuis (1994), Low S velocities under the Tornquist-Teisseyre zone: evidence for water injection into the transition zone by subduction, *J. Geophys. Res.*, 99, 15813-15820.
- O’Nions, R.K., E. Griesshaber, and E.R. Oxburgh (1989), Rocks that are too hot to handle, *Nature*, 341, 391.
- Owens, T.J., G. Zandt, and S.R. Taylor (1984), Seismic evidence for an ancient rift beneath the Cumberland Plateau, Tennessee: A detailed analysis of broadband teleseismic P waveforms, *J. Geophys. Res.*, 89, 7783-7795.
- Parotidis, M., E. Rothert, and S.A. Shapiro (2003), Pore-pressure diffusion: A possible triggering mechanism for the earthquake swarms 2000 in Vogtland/NW-Bohemia, central Europe, *Geophys. Res. Lett.*, 30(20), 2075, doi:10.1029/2003GL018987.
- Parotidis, M., S.A. Shapiro, and E. Rothert (2005), Evidence for triggering of the Vogtland swarms 2000 by pore pressure diffusion, *J. Geophys. Res.*, 110, B05S10, doi:10.1029/2004JB003267.
- Passier, M.L. and R.K. Snieder (1996), Correlation between shear wave upper mantle structure and tectonic surface expressions: Application to central and southern Germany, *J. Geophys. Res.*, 101, 25293-25304.
- Plenefisch, T., and K. Klinge (2003), Temporal variations of focal mechanisms in the Novy Kostel focal zone (Vogtland/NW-Bohemia) – comparison of the swarms of 1994, 1997 and 2000, *J. Geodyn.*, 35, 145-156.
- Plomerová, J. and V. Babuška (1988), Lithosphere thickness in the contact zone of the Moldanubicum and Saxothuringicum in central Europe, *Phys. Earth Planet. Inter.*, 51, 159-165.
- Plomerová, J., V. Babuška, J. Šílený, and J. Horálek (1998), Seismic Anisotropy and Velocity Variations in the Mantle beneath the Saxothuringicum-Moldanubicum Contact in Central Europe, *Pure appl. geophys.*, 151, 365-394.
- Plomerová, J., D. Kouba, and V. Babuška (2002), Mapping the lithosphere-asthenosphere boundary through changes in surface-wave anisotropy, *Tectonophysics*, 358, 175-185.
- Plomerová, J., U. Achauer, V. Babuška, M. Granet, and BOHEMA working group (2003), BOHEMA 2001-2003: Passive Seismic Experiment to Study Lithosphere-Asthenosphere System in the Western Part of the Bohemian Massif, *Studia geophys. et geod.*, 47, 691-701.
- Plomerová, J., U. Achauer, V. Babuška, L. Vecsey and BOHEMA working group (2006), Upper mantle beneath the Eger Rift (Central Europe): plume or asthenosphere upwelling? *Geophys. J. Int.*, submitted.
- Praus, O., J. Pěčová, V. Petr, V. Babuška, and J. Plomerová (1990), Magnetotelluric and seismological determination of the lithosphere-asthenosphere transition in Central Europe, *Phys. Earth Planet. Inter.*, 60, 212-228.
- Prodehl, C., S. Müller, and V. Haak (1995), The European Cenozoic rift system, in *Continental rifts: evolution, structure, tectonics*, edited by K.H. Olsen, pp. 133-212, Developments in Geotectonics, 25, Elsevier.
- Ramesh, D.S., R. Kind, and X. Yuan (2002), Receiver function analysis of the North American crust and upper mantle, *Geophys. J. Int.*, 150, 91-108.



- Revenaugh, J., and S.A. Sipkin (1994), Seismic evidence for silicate melt atop the 410-km discontinuity, *Nature*, *369*, 474-476.
- Ringwood, A.E., and A. Major (1966), High-pressure transformations in pyroxenes, *Earth Planet. Sci. Lett.*, *1*, 241-245.
- Ritter, J.R.R., M. Jordan, U.R. Christensen, and U. Achauer (2001), A mantle plume below the Eifel volcanic fields, Germany, *Earth Planet. Sci. Lett.*, *186*, 7-14.
- Rost, S., and M. Weber (2002), The upper mantle transition zone discontinuities in the Pacific as determined by short-period array data, *Earth Planet. Sci. Lett.*, *204*, 347-361.
- Rothert, E., S.A. Shapiro, S. Buske, and M. Bohnhoff (2003), Mutual relationship between microseismicity and seismic reflectivity: Case study at the German Continental Deep Drilling Site (KTB), *Geophys. Res. Lett.*, *30*(17), 1893, doi:10.1029/2003GL017848.
- Rychert, C.A., K.M. Fischer, and S. Rondenay (2005), A sharp lithosphere-asthenosphere boundary imaged beneath eastern North America, *Nature*, *436*, 542-545, doi:10.1038/nature03904.
- Sacks, I.S., and J.A. Snoke (1977), The use of converted phases to infer the depth of the lithosphere-asthenosphere boundary beneath South America, *J. Geophys. Res.*, *82*, 2011-2017.
- Sandvol, E., D. Seber, A. Calvert, and M. Barazangi (1998), Grid search modelling of receiver functions: implications for crustal structure in the Middle East and North Africa, *J. Geophys. Res.*, *103*, 26899-26917.
- Savage, M.K. (1998), Lower crustal anisotropy or dipping boundaries? Effects on receiver functions and a case study in New Zealand, *J. Geophys. Res.*, *103*, 15069-15087.
- Scheuvs, D., and G. Zulauf (2000), Exhumation, strain localization, and emplacement of granitoids along the western part of the Central Bohemian shear zone (central European Variscides, Czech Republic), *Int. J. Earth Sci.*, *89*, 617-630.
- Schönenberg, R., and J. Neugebauer (1997), *Einführung in die Geologie Europas*, Rombach Verlag, Freiburg im Breisgau.
- Schott, B., and H. Schmeling (1998), Delamination and detachment of a lithospheric root, *Tectonophysics*, *296*, 225-247.
- Shapiro, S.A., J. Kummerow, C. Dinske, G. Asch, E. Rothert, J. Erzinger, H.-J. Kümpel, and R. Kind (2006), Fluid induced seismicity guided by a continental fault: Injection experiment of 2004/2005 at the German Deep Drilling Site (KTB), *Geophys. Res. Lett.*, *33*, L01309, doi:10.1029/2005GL024659.
- Shearer, P.M. (1990), Seismic imaging of upper-mantle structure with new evidence for a 520-km discontinuity, *Nature*, *344*, 121-126.
- Shearer, P.M., and T.G. Masters (1992), Global mapping of topography on the 660-km discontinuity, *Nature*, *355*, 791-796.
- Shearer, P.M. (1996), Transition zone velocity gradients and the 520-km discontinuity, *J. Geophys. Res.*, *101*(B2), 3053-3066.
- Shomali, Z.H., R.G. Roberts, L.B. Pedersen, and the TOR Working Group (2006), Lithospheric structure of the Tornquist Zone resolved by nonlinear P and S teleseismic tomography along the TOR array, *Tectonophysics*, *416*, 133-149, doi:10.1016/j.tecto.2005.11.019.
- Simmons, N.A., and H. Gurrola (2000), Multiple seismic discontinuities near the base of the transition zone in the Earth's mantle, *Nature*, *405*, 559-562.
- Simpson, F. (2002), A comparison of electromagnetic distortion and resolution of upper mantle conductivities beneath continental Europe and the Mediterranean using islands as windows, *Phys. Earth Planet. Inter.*, *129*, 117-130.

## REFERENCES

- Soudouí, F., R. Kind; D. Hatzfeld, K. Priestley and Greece working group (2006a), Lithospheric structure of the Aegean obtained from P and S receiver functions, *J. Geophys. Res.*, *in revision*.
- Soudouí, F., X. Yuan, Q. Liu, R. Kind, and J. Chen (2006b), Lithospheric thickness beneath the Dabie Shan, central eastern China from S receiver functions, *Geophys. J. Int.*, *in press*.
- Song, T.A., D.V. Helmberger, and S.P. Grand (2004), Low-velocity zone atop the 410-km seismic discontinuity in the northwestern United States, *Nature*, *427*, 530-533.
- Špičák, A., J. Horálek, A. Boušková, Č. Tomek, and J. Vaněk (1999), Magma intrusions and earthquake swarm occurrence in the western part of the Bohemian Massif, *Studia geophys. et geod.*, *43*, 87-106.
- Špičák, A. (2000), Earthquake swarms and accompanying phenomena in intraplate regions: A review, *Studia geophys. et geod.*, *44*(2), 89-106.
- Špičák, A., and J. Horálek (2001), Possible role of fluids in the process of earthquake swarm generation in the West Bohemia/Vogtland seismoactive region, *Tectonophysics*, *336*, 151-161.
- Špičáková, L., D. Uličný, and G. Koudelková (2000), Tectonosedimentary Evolution of the Cheb Basin (NW Bohemia, Czech Republic) between Late Oligocene and Pliocene: A Preliminary Note; *Studia geophys. et geod.*, *44*(4), 556-580.
- Thybo, H. (2006), The heterogeneous upper mantle low velocity zone, *Tectonophysics*, *416*, 53-79, doi:10.1016/j.tecto.2005.11.021.
- Tollmann, A. (1982), Großräumiger variszischer Deckenbau im Moldanubikum und neue Gedanken zum Varisikum Europas, *Geotekton. Forschungen*, *64*.
- Tomek, Č., V. Dvořáková, and S. Vrána (1997), Geological interpretation of the 9HR and 503M seismic profiles in Western Bohemia, in *Geological model of Western Bohemia related to the KTB borehole in Germany*, edited by S. Vrána and V. Štědrá, *J. Geol. Sci., Geology*, *47*, 43-50.
- Ulrych, J., and E. Pivec (1997), Age related Contrasting Alkaline Volcanic Series in North Bohemia, *Chem. Erde*, *57*, 311-336.
- Ulrych, J., F.E. Lloyd, and K. Balogh (2003), Age Relations and Geochemical Constraints of Cenozoic Alkaline Volcanic Series in W Bohemia: A Review, *Geolines*, *15*, 168-180.
- Vavryčuk, V. (2001), Inversion for parameters of tensile earthquakes, *J. Geophys. Res.*, *106*, 16339-16355.
- Vavryčuk, V. (2002), Non-double-couple earthquakes of January 1997 in West Bohemia, Czech Republic: Evidence of tensile faulting, *Geophys. J. Int.*, *149*, 364-373.
- Vinnik, L.P. (1977), Detection of waves converted from P to SV in the mantle, *Phys. Earth Planet Inter.*, *15*, 39-45.
- Vinnik, L., and V. Farra (2002), Subcratonic low-velocity layer and flood basalts, *Geophys. Res. Lett.*, *29*, 1049, doi:10.1029/2001GL014064.
- Vinnik, L., M.R. Kumar, R. Kind, and V. Farra (2003), Super-deep low-velocity layer beneath the Arabian plate, *Geophys. Res. Lett.*, *30*, 1415, doi:10.1029/2002GL016590.
- Vinnik, L., V. Farra, and R. Kind (2004), Deep structure of the Afro-Arabian hotspot by S receiver functions, *Geophys. Res. Lett.*, *31*, L11608, doi:10.1029/2004GL019574.
- Wagner, G.A., D.A. Coyle, J. Duyster, F. Henjes-Kunst, A. Peterek, B. Schröder, B. Stöckhert, K. Wemmer, G. Zulauf, H. Arendt, R. Bischoff, E. Hejl, J. Jacobs, D. Menzel, Nand Lal, P. Van den haute, C. Vercoutere, and B. Welzel (1997), Post-Variscan thermal and tectonic evolution of the KTB site and its surroundings, *J. Geophys. Res.*, *102*(B8), 18221-18232.

- Wagner, G.A., K. Gögen, R. Jonckheere, I. Wagner, and C. Woda (2002), Dating of Quaternary volcanoes Komorni Hůrka (Kammerbühl) and Železna Hůrka (Eisenbühl), Czech Republic, by TL, ESR, alpha-recoil and fission track chronometry, *Z. geol. Wiss.*, *30*(3), 191-200.
- Walter, R. (1995), *Geologie von Mitteleuropa*, 5<sup>th</sup> edition, E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart.
- Warner, M. (1990), Basalts, water or shear zones in the lower continental crust?, *Tectonophysics*, *173*, 163-174.
- Weinlich, F.H., K. Bräuer, H. Kämpf, G. Strauch, J. Tesař, and S.M. Weise (1999), An active subcontinental mantle volatile system in the western Eger rift, Central Europe: Gas flux, isotopic (He, C, and N) and compositional fingerprints, *Geochim. Cosmochim. Acta*, *63*, 3653-3671.
- Weinlich, F.H., K. Bräuer, H. Kämpf, G. Strauch, J. Tesař, and S.M. Weise (2003), Gas Flux and Tectonic Structure in the Western Eger Rift, Karlovy Vary – Oberpfalz and Oberfranken, Bavaria, *Geolines*, *15*, 181-187.
- Wessel, P., and W.H.F. Smith (1998), New, improved version of Generic Mapping Tools released, *EOS Trans. Am. Geophys. Union*, *79*(47), 579.
- Wilde- Piórko, M., J. Saul, and M. Grad (2005), Differences in the crustal and uppermost mantle structure of the Bohemian Massif from teleseismic receiver functions, *Studia geophys. et geod.*, *49*, 85-107.
- Willner, A.P., E. Sebazungu, T.V. Gerya, W.V. Maresch, and A. Krohe (2002), Numerical modelling of PT-paths related to rapid exhumation of high-pressure rocks from the crustal root in the Variscan Erzgebirge Dome (Saxony/Germany), *J. Geodyn.*, *33*, 281-314.
- Wilson, M. and H. Downes (1991), Tertiary-Quaternary Extension-Related Alkaline Magmatism in Western and Central Europe, *J. Petrology*, *32*, 811-849.
- Wilson, M. and H. Downes (1992), Mafic alkaline magmatism associated with the European Cenozoic rift system, *Tectonophysics*, *208*, 173-182.
- Wirth, W., T. Plenefisch, K. Klinge, and K. Stammler (2000), Focal mechanisms and stress field in the region Vogtland/NW-Bohemia, *Studia geophys. et geod.*, *44*(2), 126-141.
- Wittlinger, G., V. Farra, and J. Vergne (2004), Lithospheric and upper mantle stratifications beneath Tibet: New insights from Sp conversions, *Geophys. Res. Lett.*, *31*, L19615, doi:10.1029/2004GL020955.
- Yamashita, T. (1999), Pore creation due to fault slip in a fluid permeated fault zone and its effect on seismicity: generation mechanism of earthquake swarm, *Pure and Applied Geophysics*, *155*, 625-647.
- Yamazaki, A., and K. Hirahara (1994), The thickness of upper mantle discontinuities as inferred from short-period J-Array data, *Geophys. Res. Lett.*, *21*, 1811-1814.
- Yuan, X., J. Ni, R. Kind, J. Mechie, and E. Sandvol (1997), Lithospheric and upper mantle structure of southern Tibet from a seismological passive source experiment, *J. Geophys. Res.*, *102*, 27491-27500.
- Yuan, X., S.V. Sobolev, R. Kind, O. Oncken, G. Bock, G. Asch, B. Schurr, F. Graeber, A. Rudloff, W. Hanka, K. Wylegalla, R. Tibi, Ch. Haberland, A. Rietbrock, P. Giese, P. Wigger, P. Röwer, G. Zandt, S. Beck, T. Wallace, M. Pardo, and D. Comte (2000), Subduction and collision processes in the Central Andes constrained by converted seismic phases, *Nature*, *408*, 958-961.
- Yuan, X., S.V. Sobolev, and R. Kind (2002), Moho topography in the central Andes and its geodynamic implications, *Earth Planet. Sci. Lett.*, *199*, 389-402.

## REFERENCES

- Yuan, X., R. Kind, X. Li, and R. Wang (2006), The S receiver functions: synthetics and data example, *Geophys. J. Int.*, 165(2), 555-564, doi:10.1111/j.1365-246X.2006.02885.x.
- Zandt, G., S.C. Myers, and T.C. Wallace (1995), Crust and mantle structure across the Basin and Range-Colorado Plateau boundary at 37°N latitude and implications for Cenozoic extensional mechanism, *J. Geophys. Res.*, 100, 10 529-10 548.
- Zarnek, S.E., E.M. Parmentier, and K.M. Fischer (2004), Effects of basal drag and ablation on the evolution of cratonic lithosphere, *Eos*, 85 (17), T41C-03.
- Zhu, H. and H. Kanamori (2000), Moho depth variations in southern California from teleseismic receiver functions, *J. Geophys. Res.*, 105, 2969-2980.
- Ziegler, P.A. (1992), European Cenozoic rift system, *Tectonophysics*, 208, 91-111.
- Zoback, M., and H.-P. Harjes (1997), Injection induced earthquakes and the crustal stress at 9 km depth at the KTB deep drilling site, Germany, *J. Geophys. Res.*, 102, 18477-18492.
- Zulauf, G. (1994), Ductile normal faulting along the West Bohemian shear zone (Moldanubian/Teplá-Barrandian boundary): evidence for late Variscan extensional collapse in the Variscan internides. *Geol. Rundsch.*, 83, 276-292.
- Zulauf, G. (1997), Rheological collapse of a Bohemian Tibetan plateau: The Teplá-Barrandian unit (Central European Variscides), *J. Czech Geol. Soc.*, 42(3), 79-84.
- Zulauf, G., C. Bues, W. Dörr, Z. Vejnar (2002a), 10 km Minimum throw along the West Bohemian shear zone: Evidence for dramatic crustal thickening and high topography in the Bohemian Massif (European Variscides), *Int. J. Earth Sci. (Geol. Rundsch.)*, 91, 850-864, doi:10.1007/s00531-001-0250-y.
- Zulauf, G., W. Dörr, J. Fiala, J. Kotková, H. Maluski, and P. Valverde-Vaquero (2002b), Evidence for high-temperature diffusional creep preserved by rapid cooling of lower crust (North Bohemian shear zone, Czech Republic), *Terra Nova*, 14, 343-354.
- Zulauf, G. (2005), Cadomian, Variscan and Alpine imprints in the Bohemian Massif, *Schriftenreihe der Deutschen Gesellschaft für Geowissenschaften*, 39, 425-426.