

**Personal data**

Nov. 26, 1954 Born in Hamburg  
Marital status Married, 2 children  
Nationality German

**Educational and professional experience**

1960 - 1964 Primary school, Frankfurt/M  
1964 - 1973 High School (Wöhlerschule), Frankfurt/M  
1973 - 1979 Study of Geophysics, J.-W. Goethe University, Frankfurt/M  
Dec. 18, 1979 Diplom (= MSc) in Geophysics, J.W. Goethe University, Frankfurt/M.  
1980 - 1983 Research assistant at the Institute of Meteorology and Geophysics, Frankfurt/M. Writing of dissertation  
Jan. 26, 1984 Dr. phil. nat. (=PhD) at J. W. Goethe University, Frankfurt/M.  
1983 - 1988 Research assistant, Uppsala University, Sweden  
Nov 13, 1986 Degree of docent of Geophysics at University Uppsala.  
1987 - 1988 1 year substitution of the chair of geophysics at the Geophysical Institute , University Karlsruhe  
1989 - 1990 Extraordinary researcher (Docent) of the Swedish Research Council at the University Uppsala  
1990 - 1994 Associate professor (C3) of geophysics at the University Bayreuth, Bayerisches Geoinstitut  
Since Dec. 1994 Full professor (C4) of Physics of the Earth's Interior at the Goethe University, Frankfurt/M, Institute of Meteorology and Geophysics (since 2007 Institute of Geosciences)  
Oct. 2020 Retired

**University and geophysics community services**

1996 - 1997,  
2001 - 2002 Acting director of the Institute of Meteorology and Geophysics, Goethe University Frankfurt  
2000- 2006 DGG-Editor of Geophysical Journal International  
2001 – 2005 Coordinator of DFG-Bundle project "Hotspot-Ridge Interaction: Iceland" (9 projects)  
2003 -2005 Designated President of the German Geophysical Society (DGG)  
2005 -2007 President of the German Geophysical Society (DGG)  
2007 – 2009 Vice-president of the German Geophysical Society (DGG)  
2009 - 2012 Acting director of the section geophysics of the Institute of Geoscience, Goethe University Frankfurt  
2012 - 2019 Chair of Committee "Honors" of the DGG  
2013 – 2015 Member of evaluation panel of the Swedish Research Council  
2015 – 2017 Acting Director of Institute of Geosciences, Goethe University Frankfurt  
2017 – 2019 Vice Acting Director of Institute of Geosciences, Goethe University Frankfurt

**Conference organization as head of organizing committee**

Aug 5-11, 1991 3<sup>rd</sup> Workshop on "Numerical Modelling of Lithospheric and Mantel Dynamics", Weilburg/Lahn, Germany  
Sept 1992 1<sup>st</sup> German Workshop "Dynamik of the Earth's Interior", Thurnau  
Sept 1998 4<sup>th</sup> German Geodynamics Workshop, Neustadt (with G. Marquart)

March 2001      61<sup>th</sup> Annual Meeting of the German Geophysical Society, Frankfurt/Main  
Jan 2002        Gerhard-Müller Kolloquium, Neustadt  
Sep 2008        9<sup>th</sup> German-Swiss Geodynamics Workshop, Neustadt

### **Awards**

2020            Augustus Love Medal, EGU

### **Memberships**

German Geophysical Society (DGG)  
Forschungskollegiums der Physik der Erde (FKPE)  
American Geophysical Union (AGU)  
German Physical Society (DPG)

### **Research visits at**

Scripps (University of California San Diego) Apr - May 94  
University of Oregon, Eugene June - July 94  
University of Hawaii, Honolulu Apr. – July 98  
University Utrecht July – Aug.04  
University Prague March – Apr 05  
University Uppsala, Juli-Sep 2006, 2007, June – July 2012  
University of Hawaii, Honolulu, 16. 3. – 18. 6. 2008  
University of Grenoble May 2012  
University of Madrid, Sept 2012  
Monash University, Melbourne, Oct 2016 – Jan 2017

### **Publications**

#### **2019**

Dohmen, J, Schmeling, H., J. P. Kruse, 2019: The effect of effective rock viscosity on 2-D magmatic porosity waves. *Solid Earth*, 10, 2103–2113, <https://doi.org/10.5194/se-10-2103-2019>

Schmeling, H., G. Marquart, R. Weinberg, H. Wallner, 2019: Modelling melting and melt segregation by two-phase flow: new insights into the dynamics of magmatic systems in the continental crust. *Geophys. J. Int.*, 217, 422 - 450

#### **2018**

Shahraki, M., H. Schmeling, P. Haas, 2018: Lithospheric thickness jumps at the S-Atlantic continental margins from satellite gravity data and modelled isostatic anomalies. *Tectonophysics*. *Tectonophysics*, 722, 106 - 117

Schmeling, H., G. Marquart, M. Grebe, 2018: A porous flow approach to model thermal non-equilibrium applicable to melt migration. *Geophys. J. Int.*, Volume 212, Issue 1, 1 January 2018, Pages 119–138, doi: 10.1093/gji/ggx406

#### **2017**

Schmeling, H., N. Arndt, 2017: Modelling komatiitic melt accumulation and segregation in the transition zone. *Earth Planet. Sci. Lett.*, 472, 95 – 106

Schmeling, H., G. Marquart, and V. Nawa, 2017: The role of hydrothermal cooling of the oceanic lithosphere for ocean floor bathymetry and heat flow, *J. Geophys. Res. Solid Earth*, 122, doi:10.1002/2016JB013881

## 2016

- Burchardt, S., V. R. Troll, H. Schmeling, H. Koyi, L. Blythe, 2016: Erupted frothy xenoliths may explain lack of country-rock fragments in plutons. *Sci. Rep.* 6, 34566; doi: 10.1038/srep34566.
- Wallner, H., H. Schmeling, 2016: Numerical models of mantle lithosphere weakening, erosion and delamination induced by melt extraction and emplacement. *Int J. Earth Sciences*, 105, Issue 6, pp 1741–1760
- Fuchs, L., H Koyi, H Schmeling Numerical modeling of the effect of composite rheology on internal deformation in down-built diapirs, 2016: *Tectonophysics* 646, 79-95

## 2015

- Shahraki, M., H Schmeling, MK Kaban, AG Petrunin, 2015: Effects of the postperovskite phase change on the observed geoid *Geophysical Research Letters* 42 (1), 44-52

## 2014

- Schmeling, H, and G. Marquart, 2014: A scaling law for approximating porous hydrothermal convection by an equivalent thermal conductivity: theory and application to the cooling oceanic lithosphere. *Geophys. J. Int.*, 197 (2): 645-664 doi:10.1093/gji/ggu022
- Kaban, M. K., A. G. Petrunin, H. Schmeling, M. Shahraki, 2014: Effect of Decoupling of Lithospheric Plates on the Observed Geoid. *Surv Geophys.*, DOI 10.1007/s10712-014-9281-3
- Fuchs, L., H. Koyi, and H: Schmeling, 2014: Numerical modeling on progressive internal deformation in down-built diapirs. *Tectonophysics*, 632, 111 - 122

## 2013

- Jakovlev, A., G. Rumpker, H. Schmeling, I. Koulakov, M. Lindenfeld, and H. Wallner (2013), Seismic images of magmatic rifting beneath the western branch of the East African rift, *Geochem. Geophys. Geosyst.*, 14, 4906–4920, doi:10.1002/2013GC004939
- Shahraki, M. and H. Schmeling, 2013. Geoid and topography of Earth-like planets: a comparison between compressible and incompressible convection models for different rheologies. *Phys Earth Planet. Int.*, 216, 74-90
- Beuchert, M. J. and H. Schmeling, 2013: A melting model for the lowermost mantle using Clapeyron slopes derived from experimental data: consequences for the thickness of Ultra Low Velocity Zones (ULVZs). *Geochem. Geophys. Geosyst.*, 14, 197–208, doi:10.1029/2012GC004356.
- Fuchs, L., H. Schmeling, 2013. A new numerical method to calculate inhomogeneous and time dependent large deformations of 2D geodynamic flows with application to diapirism. *Geophys. J. Int.*, 194 (2): 623-639. doi: 10.1093/gji/ggt142
- Koyi, H., H. Schmeling, , S. Burchardt, C. J. Talbot, S. Mukherjee, H. Sjöström, Z. Chemia, 2013: Shear zones between rock units with no relative movement shear zone. *J. Struct. Geol.*, 50, 82 – 90

## 2012

- Schmidt, P., B. Lund, T. Árnadóttir, H. Schmeling, 2012: Glacial isostatic adjustment constrains dehydration stiffening beneath Iceland. *Earth Planet. Sci. Lett.*, 359-360, 152 – 161.
- Shahraki, M. and H. Schmeling, 2012: Plume-induced geoid anomalies from 2D axisymmetric temperature- and pressure dependent mantle convection models. *J. Geodynamics.*, 59 – 60, 193 – 206. doi:10.1016/j.jog.2012.01.006

- Schmeling, H., Wallner, H. (2012): Magmatic lithospheric heating and weakening during continental rifting: a simple scaling law, a 2D thermo-mechanical rifting model and the East African Rift System. *G-Cubed.*, 13, no.8, doi:10.1029/2012GC004178
- Schmeling, H., J.-P. Kruse, and G. Richard, 2012: Effective shear and bulk viscosity of partially molten rock based on elastic moduli theory of a fluid filled poroelastic medium. *Geophys. J. Int.*, 190, 1571 – 1578, doi: 10.1111/j.1365-246X.2012.05596.x
- Richard, G. C., S. Kanjilal, H. Schmeling, 2012: Solitary-waves in geophysical two-phase viscous media : a semi-analytical solution. *Phys. Earth Planet. Int.*, 198-199 (2012) 61–66
- Burchardt, S., H Koyi, H. Schmeling, L Fuchs, 2012 Sinking of anhydrite blocks within a salt diapir: modeling the influence of block orientation and salt stratification. *Geophys. J. Int.*, DOI: 10.1111/j.1365-246X.2011.05290.x
- Burchardt, S., H. Koyi, and H. Schmeling, 2012:The influence of viscosity contrasts on the 1 strain pattern and magnitude within and around dense blocks sinking through Newtonian salt. *J. Struct. Geol.*, 35, 102 – 116
- Crameri, F., H. Schmeling, G. J. Golabek, T. Duretz, R. Orendt, S.J.H. Buitter, D. A. May, B. J. P. Kaus, T. V. Gerya and P. J. Tackley, 2012. A comparison of numerical surface topography calculations in geodynamic modelling: An evaluation of the 'sticky air' method. *Geophys. J. Int.*, 189, 38 – 54. doi: 10.1111/j.1365-246X.2012.05388.x

## 2011

- Fuchs, L., Schmeling, H., and H. Koyi, 2011: Numerical models of salt diapir formation by down-building: the role of sedimentation rate, viscosity contrast, initial amplitude, and wavelength. *Geophys. J. Int.*, 186, 390 – 400. doi: 10.1111/j.1365-246X.2011.05058.x
- Wallner, H. and H. Schmeling, 2011: Sensitivity Analysis of Rift Induced Delamination with Application to Rwenzori Mountains. *Geophys. J. Int.*, doi: 10.1111/j.1365-246X.2011.05237.x
- Burchardt, S., H. Koyi and H. Schmeling, 2011: Strain pattern within and around denser blocks sinking within Newtonian salt structures. *J. Struct. Geol.*, 33, 145 – 153

## 2010

- Wallner, H. and H. Schmeling, 2010: Rift induced delamination of mantle lithosphere and crustal uplift: A new mechanism for explaining Rwenzori Mountain's extreme elevation? *International Journal of Earth Sciences*, online first, doi 10.1007/s00531-010-0521-6
- Schmeling, H., 2010: Crustal accretion at high temperature spreading centres: Rheological control of crustal thickness. *Phys. Earth Planet. Int.*, 183, 447 – 455.
- Schmeling, H., 2010: Dynamic models of continental rifting with melt generation. *Tectonophysics*, Volume 480, Issues 1-4, 5 January 2010, Pages 33-47

## 2009

- Bjarnason, I. T. and H. Schmeling, 2009: The structure of the lithosphere and asthenosphere of Iceland from surface waves. *Geophys. J. Int.* , 178, 394 – 418.. doi: 10.1111/j.1365-246X.2009.04155.x
- Tetzlaff, M. and H. Schmeling, 2009: Time-dependent interaction between subduction dynamics and phase transition kinetics. *Geophys. J. Int.*, 178, 826 – 844. doi: 10.1111/j.1365-246X.2009.04182.x
- Chemia, Z., H. Schmeling, H. Koyi, 2009: The effect of the salt viscosity on future evolution of the Gorleben salt diapir, Germany. *Tectonophysics*, 473, 446 – 456.

## 2008

- Ruedas, T., H. Schmeling, 2008: On the orientation of tensile dikes in a ridge-centered plume. *Tectonophysics*. 447, 19 - 30. doi:10.1016/j.tecto.2006.01.030
- Schmeling, H. and G. Marquart, 2008 : Crustal accretion and dynamic feedback on mantle melting of a ridge centred plume: the Iceland case. *Tectonophysics*. 447, 31 – 52. doi:10.1016/j.tecto.2006.08.012.
- Mihalffy, P., B. Steinberger, and H. Schmeling, 2008: The effect of the large-scale mantle flow field on the Iceland hotspot track. *Tectonophysics*, 447, 5 - 18. doi:10.1016/j.tecto.2006.12.012.
- Ruedas, T. and H. Schmeling, 2008: Kinematic models for the thickness of oceanic crust at and near mid-oceanic spreading centers. *J. Geophys. Res.*, 113, B01402, doi:10.1029/2006JB004746.
- Golabek, G.J., H. Schmeling, P.J. Tackley, 2008: Earth's core formation aided by flow channelling instabilities induced by iron diapirs, *Earth Planet Sci. Lett.* 271, 24-33. doi:10.1016/j.epsl.2008.02.033.
- Schmeling H., A. Y. Babeyko, A. Enns, C. Faccenna, F. Funiciello, T. Gerya, G. J. Golabek, S. Grigull , B.J.P. Kaus, G. Morra, S.M. Schmalholz, J. van Hunen, 2008: A benchmark comparison of spontaneous subduction models – Towards a free surface . *Phys. Earth. Planet. Int.*, 171, 198 – 223.

## 2007

- Ruedas, T., Marquart, G. and H. Schmeling, 2007 : Iceland : The current picture of a ridge-centred mantle plume. In: *Mantle plumes – a multidisciplinary approach*. Eds J. Ritter and U. R. Christensen. p.71 - 126, Springer, ISBN: 978-3-540-68045-1
- Marquart, G., H. Schmeling, O. Cadek, 2007: Dynamic models for flow and seismic anisotropy in the North Atlantic and comparison with observations, *Geochem. Geophys. Geosyst.*, 8, Q02008, doi:10.1029/2006GC001359.
- Chemia, Z., H. Koyi, and H. Schmeling, 2007: Numerical modeling of rise and fall of a dense layer in salt diapers. *Geophys. J. Int.*, doi:10.1111/j.1365-246X.2007.03661.x.

## 2006

- Schmeling, H. (2006), A model of episodic melt extraction for plumes, *J. Geophys. Res.*, 111, B03202, doi:10.1029/2004JB003423

## 2005

- Enns, A. , Th. W. Becker, and H. Schmeling, 2005: The dynamics of subduction and trench migration for viscosity stratification *Geophys. J. Int.* 160, 761–775,
- Maurus, J., N. Bagdassarov, H. Schmeling, 2005: Electrical conductivity and partial melting of mafic rocks under pressure. *Geochim. Cosmochim. Acta*, 69(19), 4703 – 4718.

## 2004

- Ruedas, T., H. Schmeling, G. Marquart, A. Kreutzmann, A. Junge, 2004: Dynamics and melting of a ridge-centered plume with application to Iceland, part I: Evolution and crust production. *Geophys. J. Int.*, 158(2), 729-743.743
- Kreutzmann, A., H. Schmeling, A. Junge, T. Ruedas, G. Marquart, 2004: Dynamics and melting of a ridge-centered plume with application to Iceland, part II: Predictions for electromagnetic and seismic observables. *Geophys. J. Int.*, *Geophys. J. Int.*, 159, 1097 - 1111
- Ilk, K.H., J. Flury, R. Rummel, P. Schwintzer, W. Bosch, C. Haas, J. Schröter, D. Stammer, W. Zahel, H. Miller, R. Dietrich, P. Huybrechts, H. Schmeling, D. Wolf, J. Riegger, A. Bardossy, A. Güntner, 2004: Mass Transport and Mass Distribution in the Earth

System - Contribution of the New Generation of Satellite Gravity and Altimetry Missions to Geosciences, Proposal for a German Priority Research Program, pdf-version

Marquart, G. and H. Schmeling, 2004: A Dynamic Model for the Iceland Plume and the North Atlantic based on Tomography and Gravity Data, *Geophys. Geophys. J. Int.*, 159, 40 - 52,

### **2003**

Schmeling, H., G. Marquart, T. Ruedas, 2003: Pressure- and temperature-dependent thermal expansivity and the effect on mantle convection and surface observables. *Geophys. J. Int.*, 154, 224–229

Müller, K., N. Bagdassarov, H. Schmeling, 2003: Internal friction spectroscopy in Li<sub>2</sub>O-2-SiO<sub>2</sub> partially crystallised glasses. *J. Non-Crystalline Solids*, 319, 44 - 56.

Bagdassarov N., Maumus J., Schmeling H., 2003: Elektrische Eigenschaften teilgeschmolzener Gesteine an der mittelozeanischen Spreizungsachse, *Mitteilungen der Deutschen Gesellschaft für Meeresforschung*, Heft 2-3/2003

### **2002**

Schmeling, H., A. Junge, G. Marquart, T. Ruedas, A. Kreuzmann, 2002: Island, Vulkaninsel auf dem Mittelatlantischen Rücken: Erkundung der tiefen Ursachen durch geophysikalische Modellierungen. *Kleine Senckenberg-Reihe*, A. Junge (Hrsg.), 161-170.

### **2001**

Steinberger, B., H. Schmeling and G. Marquart, 2001: Large-scale lithospheric stress field and topography induced by global mantle circulation. *Earth Planet. Sci. Lett.*, 186, 75-91.

Arnold, J., W. R. Jacoby, H. Schmeling, B. Schott, 2001: Continental collision and the dynamic and thermal evolution of the Variscan orogenic crustal root - numerical models. *J. Geodynamics*, 31, 273 - 291.

### **2000**

Schott, B., D. A. Yuen, and H. Schmeling, 2000: The significance of shear heating in continental convergent processes. *Phys. Earth Planet. Interior*, 118(3-4), pp. 273--290.

Schmeling, H., 2000: Partial melting and melt segregation in a convecting mantle. In: *Physics and Chemistry of Partially Molten Rocks*, eds. N. Bagdassarov, D. Laporte, and A.B. Thompson, Kluwer Academic Publ., Dordrecht, pp. 141 - 178.

Schott, B., D. A. Yuen, and H. Schmeling, 2000: The diversity of tectonics from fluid-dynamical modeling of the lithosphere-mantle system. *Tectonophysics*, 322, 35 - 51.

Marquart, G., H. Schmeling, G. Ito, B. Schott, 2000: Conditions for plumes to penetrate the mantle phase boundaries. *J. Geophys. Res.* 105, 5679-5693

Tetzlaff, M. and H. Schmeling, 2000: The influence of olivine metastability on deep subduction of oceanic lithosphere. *Phys. Earth Planet. Int.* 120, 29 - 38.

Marquart, G., H. Schmeling, 2000: Interaction of Mantel Plumes with the Spinell-Perovskite Phase Boundary: Implications for Chemical Mixing, *Earth and Planet. Sci. Lett.*, 177, 241 – 254

### **1999**

Schmeling, H., R. Monz, and D. C. Rubie, 1999: The influence of olivine metastability on the dynamics of subduction., *Earth Planet. Sci. Lett.*, 165, 55 - 66.

Schott, B., D.A. Yuen and H. Schmeling, 1999: Viscous heating in heterogeneous media as applied to thermal interaction between the crust and mantle. *Geophys. Res. Lett.*, 26, 513-516.

Marquart, G., H. Schmeling & A. Braun, 1999: Small Scale Instabilities below the cooling oceanic lithosphere, *Geophys. J. Int.*, 138, 655 - 666.

Koyi, H. A., A. G. Milnes, H. Schmeling, C. J. Talbot and H. Zeyen, 1999: Numerical models of ductile rebound of crustal roots beneath mountain belts. *Geophys. J. Int.*, 139, 556 - 562.

#### **1998**

Schott, B. and H. Schmeling, 1998: Delamination and detachment of a lithospheric root. *Tectonophysics*, 296, 225 - 247.

Becker, T. W. and H. Schmeling, 1998: Earthquake recurrence time variations with and without fault zone interactions. *Geophys. J. Int.*, 135, 165 - 176.

#### **1997**

Simakin, A., H. Schmeling, and V. Trubitsyn, 1997: Convection in melts due to sedimentative crystal flux from above. *Phys. Earth Planet. Int.*, 102, 185 - 200

van Keken, P., S. King, H. Schmeling, U. Christensen, D. Neumeister, M.-P. Doin, 1997: A comparison of methods for the modeling of thermochemical convection. *J. Geophys. Res.*, 102, 22477 - 22495.

#### **1996**

Schmeling, H. and G. Y. Bussod, 1996: Variable viscosity convection and partial melting in the continental asthenosphere. *J. Geophys. Res.*, 101, 5411 - 5423.

Schmeling, H., 1996: Rheology of the upper mantle: Diffusion versus dislocation creep, *Phys. Earth Planet. Int.*, in revision

#### **1995**

Bittner, D. and H. Schmeling, 1995: Numerical modelling of melting processes and induced diapirism in the lower crust. *Geophys. J. Int.*, 123, 59-70.

Cruden, A. R., H. Koyi, and H. Schmeling, 1995: Diapiric basal entrainment of mafic into felsic magma. *Earth Planet. Sci. Lett.*, 131, 321 - 340.

#### **1994**

Simakin, A., V. Trubitsyn, and H. Schmeling, 1994: Structure of the upper boundary layer of a solidifying intrusion with crystal sedimentation. *Earth Planet. Sci. Lett.*, 126, 333-349.

#### **1993**

Schmeling, H. and G. Marquart, 1993: Mantle flow and the evolution of the lithosphere. *Phys. Earth Planet. Int.*, 79, 241-267.

#### **1992**

Weinberg, R. F., and H. Schmeling, 1992: Polydiapirs: Multiwave length gravity structures. *J. Struct. Geol.*, 14, 425-436.

#### **1991**

Schmeling, H., 1991: Variable viscosity convection in a compressible upper mantle and the thickness of continental lithosphere. in: *Glacial Isostasy, Sea-Level and Mantle Rheology*, ed.: R. Sabadini, K. Lambeck, E. Boschi, Kluwer Academic Publishers, Dordrecht, P. 607-636.

Talbot, C. J., Rönnlund, P., Schmeling, H., Koyi, H., and Jackson, M. A., 1991: Diapiric spoke patterns. *Tectonophysics*, 188, 187-201.

Schmeling, H. and G. Marquart, 1991: The influence of second scale convection on the thickness of the continental lithosphere and crust. *Tectonophysics*, 189, 281-306.

#### **1990**

Schmeling, H., and G. Marquart, 1990: A mechanism for crustal thinning without lateral extension. *Geophys. Res. Lett.*, 17, 2417-2420.

#### **1989**

Blanckenbach, B., Busse, F., Christensen, U., Cserepes, L. Gunkel, D., Hansen, U., Harder, H. Jarvis, G., Koch, M., Marquart, G., Moore D., Olson, P., and Schmeling, H., 1989: A benchmark comparison for mantle convection codes, *Geophys. J. Int.*, 98, 23-38.

Schmeling, H., 1989b: Compressible convection with constant and variable viscosity: the effect on geoid, topography, and slab formation, *J. Geophys. Res.*, 94, 12463-12481.

Marquart, G. and Schmeling, H., 1989: Topography and geoid undulations caused by small scale convection beneath continental lithosphere of variable elastic thickness. *J. Geophys.*, 97, 511-527.

#### **1988**

Schmeling, H., Cruden, A. R., and Marquart, G., 1988: Progressive deformation in and around a fluid sphere moving through a viscous medium: implications for diapiric ascent. *Tectonophysics*, 149, 17-34.

Schmeling, H. 1988: Numerical models of Rayleigh-Taylor instabilities superimposed upon convection. *Bulletin of the Geological Institutions of the University of Uppsala, N.S.* Vol. 14, pp. 95-109. Uppsala ISSN 0302-2749.

#### **1987**

Schmeling, H., 1987a: On the relation between initial conditions and late stages of Rayleigh-Taylor instabilities. *Tectonophysics*, 133, 65-80.

Schmeling, H. 1987b: On the interaction between small- and large scale convection and post-glacial rebound flow in a power-law mantle. *Earth Planet. Sci. Lett.*, 84, 254-262.

#### **1986**

Schmeling, H., 1986a: Numerical models on the influence of partial melt on elastic, anelastic, and electric properties of rocks. Part II: electrical conductivity. *Phys. Earth Planet. Int.*, 43, 123-136.

Schmeling, H., 1986b: A simple statistical model on the degree of interconnection in partially molten rocks. *J. Geophys.*, 59, 142-145.

Weijermars, R. and Schmeling, H., 1986: Scaling of Newtonian and non-Newtonian fluid dynamics without inertia for quantitative modelling of rock flow due to gravity (including the concept of rheological similarity). *Phys. Earth Planet. Int.*, 43, 316-330.

#### **1985**

Schmeling, H., 1985a: Partial melt below Iceland: A combined interpretation of seismic and conductivity data. *J. Geophys. Res.*, 90, 10105-10116.

Schmeling, H., 1985b: Numerical models on the influence of partial melt on elastic, anelastic, and electric properties of rocks. Part I: elasticity and anelasticity. *Phys. Earth Planet. Int.*, 41, 34-57.

#### **1984**

#### **1983**

Schmeling, H., 1983: Numerische Modelle über den Einfluß partieller Schmelze auf elastische, anelastische und elektrische Eigenschaften von Gesteinen mit Anwendung auf Labordaten und die Asthenosphäre (Numerical models on the influence of partial melt



on elastic, anelastic, and electric properties of rocks with application to laboratory data and the asthenosphere), Dissertation, University Frankfurt/M.

### **1982**

Jacoby, W. R. and Schmeling, H., 1982: On the effects of the lithosphere on mantle convection and evolution. *Phys. Earth Planet. Int.*, 29, 305-319.

Berckhemer, H., Kampfmann, W., Aulbach, E., and Schmeling, H., 1982: Shear modulus and Q of forsterite and dunite near partial melting from forced-oscillation experiments. *Phys. Earth Planet. Int.*, 29, 30-41. **1981**

Schmeling, H. and Jacoby, W. R., 1981: On modelling the lithosphere in mantle convection with non-linear rheology. *J. Geophys.*, 50, 89-100.

Jacoby, W. R. and Schmeling, H., 1981: Convection experiments and the driving mechanism. *Geol. Rundschau*, 70, 207-230.

### **1980**

Schmeling, H., 1980: Numerische Konvektionsrechnungen unter Annahme verschiedener Viskositätsverteilungen und Rheologien im Mantel (Numerical calculations on convection assuming various viscosity distributions and rheologies in the mantle). Master thesis (Diplomarbeit). Report of the Institut für Meteorologie und Geophysik, Universität Frankfurt/M, Nr. 4