



Name: Wenzel
Given name(s): Friedemann
Date of birth: 17.01.1951
Current Position: Professor, Geophysical Institute, Karlsruhe University
Web-page(s): <http://www-gpi.physik.uni-karlsruhe.de/>
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<http://www.world-stress-map.org/>
<http://www-megacities.physik.uni-karlsruhe.de/>

Professional Career

Tertiary Education: HSC (Abitur) 1970, 1970 - 1979: Student of Geophysics at the University of Karlsruhe, Germany. Topic of 'Diploma' thesis: Methods for high resolution spectral analysis with applications of the Maximum Entropy Method to the 1970 Columbia earthquake.

Postgraduate education and degrees: 1985 Dissertation at the Faculty of Physics of the University of Karlsruhe; title of doctoral thesis: Synthetic seismograms in 2dimensional media; Academic degree: Dr.rer.nat. 1990: 'Habilitation' at the Faculty of Physics of the University of Karlsruhe; title of thesis: Born stack - towards a unified theory of reflection seismic data processing; Academic degree: Dr. habil.

Present appointment: since 1994 professor at the Geophysical Institute, Karlsruhe University.

Previous appointments:

1979 - 1980: Research scientist at Lamont-Doherty Geological Observatory of Columbia University, New York

1980 - 1985: Wissenschaftlicher Assistent (full-time research assistant) at the Geophysical Institute Karlsruhe

1980 - 1987: Wissenschaftlicher Angestellter (research scientist) at the Geophysical Institute Karlsruhe

1988 - 1990: Hochschulassistent (C1) (Associate Professor) at the Geophysical Institute Karlsruhe

1990 - 1992: Principal Research Scientist for the Commonwealth Scientific and Industrial Research Organization, Division of Exploration Geoscience, Sydney, and Fellow at School of Earth Sciences of Macquarie University, Sydney.

1992 - 1994: Director of the department 'Structure of the Earth' at GeoForschungs Zentrum Potsdam, and Professor of Geophysics at Potsdam University.

1994 - Professor at the Geophysical Institute, Karlsruhe University

Responsibilities, awards and memberships: since 1996 coordinator of the Collaborative Research Center (Sonderforschungsbereich) 461: 'Strong Earthquakes - A Challenge for Geosciences and Civil Engineering' at Karlsruhe University; between 1996 and 2001 Editor in Chief of TECTONOPHYSICS; since 1998 co-leader (jointly with Dr. Fouad Bendimerad, U.S.) of the 'Earthquake and Megacities Initiative' operating under the umbrella of UNESCO and ICSU; between 1999 and 2001 member of the European Union of Geosciences Council; between 2000 and 2004 vice-chairman of the German Committee for Disaster Reduction and

chairman of its Scientific Board; since 2002 member of the Heidelberg Academy of Science and Humanities; 2003 professor Honoris Causa of Bucharest University. Member of various professional societies: Deutsche Geophysikalische Gesellschaft (DGG), American Geophysical Union (AGU), Society of Exploration Geophysicists (SEG), Seismological Society of America (SSA), German Society of Earthquake Engineering and Structural Dynamics (DGEB), Earthquake Engineering Research Institute (EERI).

Research Area

Research interests between 1979 and 1994 focused on reflection seismic studies of the earth's continental crust and upper mantle, on novel methods for reflection seismic data processing, and numerical modelling of elastic wave propagation. 1986-1990 head of French/German working group concerned with ECORS /DEKORP deep seismic reflection lines across the Rhine Graben; initiator of URSEIS (deep seismic line across the Urals in US-Russian-Spanish-German cooperation in 1994. As director at GFZ in Potsdam I initiated GFZ's national instrumental program for digital geophysical (seismological and EM) field measurements.

Since 1994 research interests focused on engineering seismology, crustal and upper mantle tomography, stress field of the lithosphere, geophysical hazards and risk mitigation, specifically in megacities.

Key publications of the past 5 years

International Journals and reviewed contributions to books:

- Tittgemeyer, M., Wenzel, F., Ryberg, T. and Fuchs, K.: Scales of heterogeneities in the continental crust and upper mantle, *Pure Appl. Geophys.*, 156, 29-52, 1999.
- Wenzel, F., Oncescu, M.M., M. Baur, F. Fiedrich & C. Ionescu: An early warning system for Bucharest, *Seismol. Res. Letters*, 70, 2, 161-169, 1999.
- Tittgemeyer, M., F. Wenzel and K. Fuchs, On the Nature of P_n . *J. Geophys. Res.*, 105, B7, 16.173, 2000
- Ryberg, T., M. Tittgemeyer and F. Wenzel, Finite difference modelling of P-wave scattering in the upper mantle, *Geophys. J. Int.*, 141, 3, 787-800, 2000.
- Wenzel, F., Baur, M., Fiedrich, F., Oncescu, M.C. & Ionescu, C.: Potential of Earthquake Early Warning Systems, *Journal of Natural Hazards*, 23, 407-416, 2001.
- Pohl, M., Wenzel, F., Weiss, Th., Siegesmund, S., Bohlen, Th. & Rabbel, W.: Realistic models of anisotropic laminated lower crust, *Pure Appl. Geophys.*, 156, 139-155, 1999.
- Tittgemeyer, M., Ryberg, T., Wenzel, F. & Fuchs, K.: Heterogeneity of the uppermost mantle inferred from controlled-source seismology. In: J Goff and K. Holliger, Editors, *Heterogeneity in the Crust and Upper Mantle: Nature, Scaling and Seismic Properties*, Kluwer Academic Publishers, Chapter 11, 281-297, 2003.
- Wenzel, F., Sperner, B., Lorenz, F. & Mocanu, V.: Geodynamics, tomographic images and seismicity of the Vrancea region (SE-Carpathians, Romania). *EGU Stephan Mueller Special Publication Series*, 3, 1-10, 2002.
- Wößner, J., Treml, M. & Wenzel, F.: Simulation of $M_w = 6.0$ earthquakes in the Upper Rhinegraben using Empirical Green Functions. *GJI*, 151, 2, 487-500, 2002.
- Wirth, W., Wenzel, F., Sokolov, V.Yu. & Bonjer, K.-P.: A uniform approach to urban seismic site effect analysis, *Dynamics and Earthquake Engineering*, 23, 8, 737-758, 2003.
- Wenzel, F., Oncescu, M.C., Baur, M, Fiedrich, F. & Ionescu, C.: 25 Seconds for Bucharest. In: *Early Warning Systems for Natural Disaster Reduction, EWC '98*. J. Zschau & A.N. Küppers (eds.). Springer Verlag, ISBN 3-540-67962-6, 471-478, 2002.
- Gottschämmer, E., Wenzel, F., Wust-Bloch, H. & Ben-Avraham, Z.: Earthquake modeling in the Dead Sea Rift. *Geophysical Research Letters*, 29, 12, 8-1 – 8-4, 2002.
- Wenzel, F. & Bendimerad, F.: Earthquakes and Megacities. In: *Risk Science and Sustainability*, Proc. Volume of the NATO Advanced Workshop on Science for

- Reduction of Risk and Sustainable Development of Society, T. Beer & A. Ismail-Zadeh (eds.), Budapest 2002, Nato Sciences Series, 112, 111-125, 2003.
- Martin, M., Wenzel, F. and the CALIXTO working group: High-resolution Teleseismic Body Wave Tomography Beneath SE-Romania (II): Imaging of a Slab Detachment Scenario. *J. Int.*, in print, 2005
- Miksat, J., Wenzel, F., and Sokolov, V.: Low Free-Field Accelerations of the 1999 Kocaeli Earthquake? *Pure and Applied Geophysics*, 162, 857-874, 2005.
- Sokolov V. Yu, K.-P. Bonjer and F. Wenzel. Accounting for site effect in probabilistic assessment of seismic hazard for Romania and Bucharest: a case of deep seismicity in Vrancea zone. *Soil Dynamics and Earthquake Engineering* , 24 (12), 927-947, 2004.
- Wenzel, F., Heidbach, O., Müller, B. & Reinecker, J.: Die Weltkarte der tektonischen Spannungen: Methoden – Ergebnisse – Anwendung. *Fridericiana, Zeitschrift der Universität Karlsruhe (TH)*, Heft 63, 19-34, 2004.
- Heidbach, O., Barth, A., Connolly, P., Fuchs, K., Müller, B., Reinecker, J., Sperner, B., Tingay, M. & Wenzel, F.: Stress Maps in a Minute: The 2004 World Stress Map Release, *Eos Trans.*, 85 (49), 2004.
- Peters, G., Buchmann, T.J., Connolly, P., van Balen, R., Wenzel, F. & Cloetingh, S.A.P.L.: Interplay between tectonic, fluvial and erosional processes along the Western Border Fault of the northern Upper Rhine Graben, Germany. *Tectonophysics* 406, 39-66, 2005.

Edited books:

- Wenzel, F., Lungu, D. & Novak, O. (eds): *Vrancea Earthquakes: Tectonics, Hazard and Risk Mitigation. Selected papers of the First International Workshop on Vrancea Earthquakes, Bucharest, November 1-4, 1997.* Kluwer Academic Publishers, Dordrecht, Netherlands, 374pp., 1999.
- Lungu, D., Wenzel, F., Mouroux, P. & Tojo, I. (eds.), *Earthquake Loss Estimation and Risk Reduction, Vol. 1, Independent Film, Bucharest*, pp. 366, 2004.
- Lungu, D., Wenzel, F., Mouroux, P. & Tojo, I. (eds.), *Earthquake Loss Estimation and Risk Reduction, Vol. 2, Independent Film, Bucharest*, pp. 421, 2004.
- Wenzel, F. (ed.): *Lecture Notes in Earth Sciences Volume 105: Perspectives in Modern Seismology*, Springer Verlag Heidelberg, pp. 228, 2005