

Biographical Sketch for: Götz H.R. Bokelmann

BORN: on Aug. 1 in Würzburg, Germany (Male); E-mail: goetz@alumni.princeton.edu
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EDUCATION

Diplom (Geophysics), Universität Bochum, 1987
Ph.D. (Geophysics), Princeton University, 1992
Dr.habil. (Geophysics), Universität Bochum, 1997

POSITIONS HELD

RA & TA, Princeton University (1987-1991), Predoctoral Fellow, Carnegie Institution of Washington (1991-1992)
Assistant Professor, Universität Bochum (1992-1998), Visiting Scientist, Carnegie Institution of Washington (1998)
Visiting Associate Professor, Stanford University (1998-2003) and Heisenberg Fellow (1999-2003)
Professeur Invité, IPG Paris (2003), Full Professor of Geodynamics, Université Montpellier (2003-...)

PRINCIPAL HONORS:

- (1) Heisenberg Fellow, DFG (1998)
- (2) Fellow of the Geological Society of America (2000)

SCIENTIFIC CONTRIBUTIONS:

- (1) Developed techniques for understanding the role of basal forces under large tectonic plates and the “mechanism of plate tectonics”, based on seismic anisotropy and large-scale deformation of deep shields. For the North American plate I showed that basal forces are important, and given its particular location over a downwelling a consequence is that the motion of North America will eventually stop.
- (2) Contributed to understanding plate boundary structure and dynamics (i.e., for the San Andreas fault system) using relocation techniques and focal mechanisms. Some of the results are that a) the lower crust seems to be weak under the San Andreas fault system in Northern California, and b) that the faults are most likely loaded from the side. We also confirm general mechanical weakness of the faults using focal mechanisms.
- (3) Devised techniques for crustal anisotropy studies (e.g. from P-wave polarization data) and for array seismology.
- (4) Showed the existence of temporal variations of elastic properties in the Earth's crust, contributed to understanding the physical and chemical effects, and explored their applications (e.g., pore pressure in the crust).
- (5) Studied plume regions (Eifel, Hawaii, etc.), and i.e. mantle flow beneath them to resolve the nature of upwelling.

SELECTED RECENT PUBLICATIONS (as of 2003):

- Bokelmann, G.H.R., Kovach, R.L., 2003, Long-term creep rate changes and their causes, *Geophys. Res. Lett.*, 30, 8, 10.1029/2003GL017012
- Bokelmann, G.H.R., Silver, P.G., 2002, Shear stress at the base of shield lithosphere, *Geophys. Res. Lett.*, 29(23), 2091, doi:10.1029/2002GL015925
- Bokelmann, G.H.R., 2002, Which forces drive North America?, *Geology*, 30, 11, 1027-1030.
- Bokelmann, G.H.R., 2002, Convection-driven motion of the North American craton: Evidence from P-wave anisotropy, *Geophys. J. Int.*, 248, 2, 278-287.
- Schaff, D., Bokelmann, G.H.R., Beroza, G.C., Waldhauser, F., Ellsworth, W.L., 2002, High resolution image of Calaveras fault seismicity, *J. Geophys. Res.*, in press
- Walker, K.T., G. H.R. Bokelmann, S. L. Klemperer, 2001, Shear-wave splitting to test mantle deformation models around Hawaii, *Geophys. Res. Lett.*, 28, 22, 3219-3322.
- Baisch, S., Bokelmann, G. H., 2001, Seismic waveform attributes before and after the Loma Prieta earthquake: Scattering change near the earthquake and temporal recovery, *J. Geophys. Res.*, 106, 16323-16338.
- Bokelmann, G.H.R., 2001, A method for resolving small temporal variations of effective elastic properties, *SEG-Special Volume on Seismic Anisotropy*, p.86-93
- Bokelmann, G.H.R., Kovach, R.L. (eds.), 2000, *Tectonic Problems of the San Andreas Fault System*, Stanford University, 384 pages (also available online through <http://pangea.stanford.edu/GP/sanandreas2000/index.html>).
- Bokelmann, G.H.R., H.P. Harjes, 2000, Evidence for temporal variation of seismic velocity within the upper continental crust, *J. Geophys. Res.*, 105, 23879-23894.
- Bokelmann, G.H.R., Beroza, G.C., 2000, Depth-dependent earthquake focal mechanism orientation: Evidence for a weak zone in the lower crust, *J. Geophys. Res.*, 105, 21683-21696.
- Bokelmann, G.H.R., Silver, P.G., 2000, Mantle variation within the Canadian Shield: Travel times from the APT89 portable broadband transect, *J. Geophys. Res.*, 105, 579-605.
- Bokelmann, G.H.R., Baisch, S., 1999, Nature of narrow-band signals at 2.083 Hz, *Bull. Seismol. Soc. Am.*, 89, 1, 156-164.

