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September 1, 2008

Name: Toshihiko Shimamoto

Date of birth: 26 June 1946 (61 years old)
Birth place: Hiroshima, Japan
Citizenship: Japan
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Academic career

- March 1969: BS degree from Hiroshima University
Faculty of Science, majored in Geology and Mineralogy
(Supervisor: Dr. Ikuo Hara)
- March 1971: MS degree from Hiroshima University
Faculty of Science, majored in Geology and Mineralogy
(Supervisor: Dr. Ikuo Hara)
- December 1977: Ph. D. from Texas A&M University
College of Geosciences, majored in Geology
(Supervisors: Prof. John M. Logan and Prof. Melvin Friedman)

Professional career

- Oct 1977 to Oct 1986
Research Associate, Hiroshima University,
Faculty of Science, Institute of Geology and Mineralogy
- Dec 1980 to Sept 1981 (*on leave from Hiroshima University*)
Postdoctoral Research Fellow, Texas A&M University
Center for Tectonophysics, College of Geosciences
(Host scientist: Prof. John M. Logan)
- Sept 1983 to Oct 1984 (*on leave from Hiroshima University*)
Visiting Assistant Professor, Texas A&M University
Department of Geology and Center for Tectonophysics, College of Geosciences
(Host scientist: Prof. John M. Logan)
- Oct 1986 to Jan 1989
Associate Professor, Hiroshima University
Faculty of Science, Institute of Geology and Mineralogy
- Oct 1988 to Dec 1988 (*on leave from Hiroshima University*)
Visiting Scientist, CSIRO, Melbourne, Australia
Division of Geomechanics (Host scientist: Dr. Bruce E. Hobbs)

Feb 1989 to Jan 1995

Associate Professor, University of Tokyo
Earthquake Research Institute

Oct 1989 to Dec 1989 (*on leave from University of Tokyo*)

Visiting Scientist, CSIRO, Melbourne, Australia
Division of Geomechanics (Host scientist: Dr. Bruce E. Hobbs)

Feb 1995 to March 1998

Professor, University of Tokyo
Earthquake Research Institute

April 1998 to March 2007

Professor, Kyoto University
Division of Earth and Planetary Sciences, Graduate School of Science

April 2007 to present

Professor, Department of Earth and Planetary Systems Sciences, Graduate School of Science
Hiroshima University

Award

2005 Geological Society of Japan Award

“Experimental studies on fault mechanics and earthquake generating processes”

Academic societies

American Geophysical Union, International Society for Rock Mechanics,
Seismological Society of America, Geological Society of Japan,
Seismological Society of Japan, Japanese Society of Engineering Geology

Academic activities

1987 to 2007: Journal of Structural Geology (Pergamon Press, changed to: Elsevier)

Editorial Advisory Board, member

1992 to 1997: The Island Arc (Blackwell Scientific Publications)

Editorial Advisory Board, member

1998 to 2004: The Island Arc (Blackwell Scientific Publications), Associate editor

(till vol. 13, issue 1, March 2004)

Invited lectures

Kyoto University (1990), Kochi University (1990), Shizuoka University (1990, 2003), Niigata University (1991, 2007), Tohoku University (1992, 1999), Osaka City University (1992), Kobe University (1993, 2007), Hiroshima University (1993), Okayama University (1995), Chiba University (1995, 2008), Ehime University (1999), Tokushima University (2000), Nagoya University (2002), Tsukuba University (2002), Korea University (2006), University of Oregon (2007)

Design Seminar “Deformation and fluid-flow apparatuses”

1st seminar (Kyoto University, 2001, in Japanese), 2nd seminar (Kyoto University, 2002, in Japanese)

3rd seminar (Texas A&M University, 2004, in English), 4th Seminar (Kyoto University, 2005, in English)

5th seminar (Kyoto University, 2005, in Japanese), 6th Seminar (Kyoto University, 2005, in English)

7th seminar (Kyoto University, 2006, in English), 8th Seminar (INGV, Rome, 2006, in English)

9th seminar (Hiroshima University, 2008, in English)

Papers in the last 6 years in English

- (1) Boutareaud, S., Wibberley, C. A. J., Fabbri, O. and Shimamoto, T., 2008, Permeability structure and co-seismic thermal pressurization on fault branches: insights from the Usukidani Fault, Japan, *Geological Society of London, Special Publications*, in press.
- (2) Tanikawa, W. and Shimamoto, T., 2008, Comparison of Klinkenberg-corrected gas permeability and water permeability in sedimentary rocks, *Int. Jour. Rock Mech. Min. Sci.*, in press.
- (3) Brantut, N., Schubnel, A., Rouzaud, J.-N., Brunet, F. and Shimamoto, T., 2008, High velocity frictional properties of a natural clay bearing fault gouge, *Jour. Geophys. Res.*, in press.
- (4) Mizoguchi, K., Hirose, T., Shimamoto, T. and Fukuyama, E., 2008, Internal structure and permeability of Nojima Fault, Southwest Japan, *Jour. Struct. Geol.*, **30**, 513-524.
- (5) Boutareaud, S., Calugaru, D., Han, R., Fabbri, O., Mizoguchi, K., Tsutsumi, A. and Shimamoto, T., 2008, Clay-clast aggregates: a new textural evidence for seismic fault sliding? *Geophys. Res. Lett.*, **35**, L05302, doi: 10.1029/2007/GL032554.
- (6) Nielsen, S., Di Toro, G., Hirose, T. and Shimamoto, T., 2008, Frictional melt and seismic slip, *Jour. Geophys. Res.*, **113**, B01308, doi:10.1029/2007JB005122.
- (7) Sone, H., Yeh, E.-C., Nakaya, T., Hung, J.-H., Ma, K.-F., Wang, C.-Y., Song, S.-R. and Shimamoto, T., 2007, Mesoscopic structural observations of cores from the Chelungpu fault system, Taiwan Chelungpu-Fault Drilling Project Hole-A, Taiwan, *Terrestrial, Atmospheric and Oceanic Sciences*, **18**, 359-377.
- (8) Han, R., Shimamoto, T., Hirose, T., Ree, J.-H. and Ando, J., Ultra-low friction of carbonate faults caused by thermal decomposition, *Science*, 2007, **316**, 878-881.
- (9) Mizoguchi, K., Hirose, T. Shimamoto, T. and Fukuyama, E., 2007: Reconstruction of seismic faulting by high-velocity friction experiments: an example of the 1995 Kobe earthquake, *Geophys. Res. Lett.*, **34**, L01308, doi:10.1029/2006GL027931.
- (10) Di Toro, G., Hirose, T., Nielsen, S. and Shimamoto, T., 2007: Relating high-velocity rock-friction experiments to coseismic slip in the presence of melts, *AGU Monograph 170*, "Earthquakes: Radiated Energy and the Physics of Faulting", pp. 121-134.
- (11) Shibazaki, B. and Shimamoto, T., Modeling of short-interval silent slip events in deeper subduction interfaces considering frictional properties at the unstable-stable transition regime, *Geophys. J. Int.*, 2007, doi: 10.1111/j.1365-246X.2007.03434.x.
- (12) Han, R., Shimamoto, T., Ando, J. and Ree, J.-H., Seismic slip record in carbonate-bearing fault zones: an insight from high-velocity friction experiments on siderite gouge, *Geology*, 2007, **35**, 1131-1134.
- (13) Uehara, S. and Shimamoto, T., Permeability of fault rocks from the Median Tectonic Line in Ohshika-mura, Nagano, Japan as studied by pressure-cycling tests, *Geological Society of London, Special Publication* **289**, Lewis, H. and Couples, G. D., eds., "The Relationship between Damage and Localization", 2007, 143-160
- (14) Jefferies, S. P., Holdsworth, R. E., Wibberley, C. A. J., Shimamoto, T., Spiers, C. J., Niemeijer, A. R., and Lloyd, G. E., The nature and importance of phyllonite development in the crustal-scale

- fault cores: an example from the Median Tectonic Line, Japan, *Jour. Struct. Geol.*, 2006, **28**, 220-235.
- (15) Di Toro, G., Hirose, T., Nielsen, S., Pennacchioni, G. and Shimamoto, T., Natural and experimental evidence of melt lubrication of faults during earthquakes, *Science*, 2006, **311**, 647-649.
- (16) Mizoguchi, K., Hirose, T. Shimamoto, T. and Fukuyama, E., Moisture-related weakening and strengthening of a fault activated at seismic slip rates, *Geophys. Res. Lett.*, 2006, **33**, L16319, doi:10.1029/2006GL026980.
- (17) O'Hara, K., Mizoguchi, K., Shimamoto, T. and Hower, J. C., Experimental frictional heating of coal gouge at seismic slip rates: evidence for devolatilization and thermal pressurization of gouge fluids, *Tectonophysics*, 2006, **424**, 109-118.
- (18) Jefferies, S. P., Holdsworth, R. E., Shimamoto, T., Takagi, H., Lloyd, G. E. and Spiers, C. J., Origin and mechanical significance of foliated cataclastic rocks in the cores of crustal-scale faults: Examples from the Median Tectonic Line, Japan, *J. Geophys. Res.*, 2006, **111**, B12303, doi:10.1029/2005JB004205.
- (19) Tanikawa, W. and Shimamoto, T., Klinkenberg effect for gas permeability and its comparison to water permeability for porous sedimentary rocks, *Hydrol. Earth Syst. Sci. Discuss.*, 3, 1315-1338.
- (20) Hirose, T. and Shimamoto, T., Growth of molten zone as a mechanism of slip weakening of simulated faults in gabbro during frictional melting, *Jour. Geophys. Res.*, 2005, 2006, **110**, B05202, doi:10.1029/2004JB003207.
- (21) Wibberley, C. A. J. and Shimamoto, T., Earthquake slip weakening and asperities explained by thermal pressurization, *Nature*, 2005, **436**, 689-692, doi 10.1038.
- (22) Noda, H. and Shimamoto, T., Thermal pressurization and slip-weakening distance of a fault: an example of the Hanaore fault, Southwest Japan, *Bull. Seismol. Soc. Am.*, 2005, **95**, 1224-1233, doi 10.1785/0120040089.
- (23) Hirose, T. and Shimamoto, T., Slip-weakening distance of faults during frictional melting as inferred from experimental and natural pseudotachylites, *Bull. Seismol. Soc. Am.*, 2005, **95**, 1666-1673, doi 10.1785/0120040131.
- (24) Fukuchi, T., Mizoguchi, K. and Shimamoto, T., Ferrimagnetic resonance signal produced by frictional heating: a new indicator of paleoseismicity, *Jour. Geophys. Res.*, 2005, **110**, B12404, doi: 10.1029/2004JB003485.
- (25) Uehara, S. and Shimamoto, T., Gas permeability evolution of cataclasite and fault gouge in triaxial compression and implications for changes in fault-zone permeability structure through the earthquake cycle, *Tectonophysics*, 2004, **378**, 183-195.
- (26) Tsutsumi, A., Nishino, S., Mizoguchi, K., Hirose, T., Uehara, S., Sato, K., Tanikawa, W. and Shimamoto, T., Principal fault zone width and permeability of the active Neodani fault, Nobi fault system, Southwest Japan, *Tectonophysics*, 2004, **379**, 93-108.
- (27) Shimamoto, T., Noda, H., Tanikawa, W., Wibberley, C. A. J. and Uehara, S., Fault-zone permeability structures and their implications for earthquake mechanisms and geo-engineering problems, Y. Ohnishi and K. Aoki, eds., *Contribution of Rock Mechanics to the New Century*,

Proceedings of the Third Asian Rock Mechanics Symposium, 30 Nov. – 2 Dec., 2004, Kyoto, Japan, Millpress, Rotterdam, Netherland, 2004, pp. 1021-1026.

- (28) Tanikawa, W., Shimamoto, T., Wey, W.-K., Wu, W.-Y., Lin, C.-W. and Lai, W.-C., Sedimentation and generation of abnormal fluid pressure in the focal area of 1999 Taiwan Chi-Chi earthquake, Y. Ohnishi and K. Aoki, eds., *Contribution of Rock Mechanics to the New Century*, Proceedings of the Third Asian Rock Mechanics Symposium, 30 Nov. – 2 Dec., 2004, Kyoto, Japan, Millpress, Rotterdam, Netherland, 2004, pp. 553-557.
- (29) Wibberley, C. A. J. and Shimamoto, T., Internal structure and permeability of major strike-slip fault zones: the Median Tectonic Line in Mie Prefecture, Southwest Japan, *Jour. Struct. Geol.*, 2003, **25**, 59-78.
- (30) Hirose, T. and Shimamoto, T., Fractal dimension of molten surfaces as a possible parameter to infer the slip-weakening distance of faults from natural pseudotachylytes. *J. Struct. Geol.*, 2003, **25**, 1569-1574, 2003.