

Hiroki Sone (Assistant Professor)

Department of Civil and Environmental Engineering
Geological Engineering Program
Department of Geoscience (Affiliated Faculty)
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EDUCATION:

2004 B.S. Geology and Mineralogy, Kyoto University
2006 M.S. Geology and Mineralogy, Kyoto University
2012 Ph.D. Geophysics, Stanford University

APPOINTMENTS:

2015- Assistant Professor, Geological Engineering, University of Wisconsin-Madison
2015-8 Visiting Professor, German Research Centre for Geosciences (GFZ Potsdam)
2013 Downhole Logging Specialist, IODP NanTro SEIZE Expedition 348
2012-5 Research Scientist, German Research Centre for Geosciences (GFZ Potsdam)
2010 Geophysics Intern, BP America Inc.
2008 Geophysics Intern, ExxonMobil Upstream Research Company
2007 On-site Geophysicist, San Andreas Fault Observatory at Depth (SAFOD)
2005 On-site Geologist (Student Trainee), JAMSTEC, TCDP Hole-B
2004 On-site Geologist, Taiwan Chelungpu-fault Drilling Project, TCDP Hole-A

PROFESSIONAL ACTIVITY AND SERVICE:

Invited Speaker: UW-Madison (2013.11), MIT (2014.5), UW-Madison Weeks Lecture (2015.11), AGU 2015 Fall Meeting, Northwestern Univ. (2016.3), Texas A&M Univ. (2016.10), AGU 2016 Fall Meeting, Purdue Univ. (2017.1), SKK Migas (2018.5)

Organizing Committee: 51st US Rock Mechanics / Geomechanics Symposium, 2017

Programme Committee: EGU General Assembly, 2015-7

Session Convener: EGU General Assembly 2013-5, GeoMod 2014, ARMA 2015-8, AGU 2016-2018, JpGU 2017

ASTM International: Participating Member, Subcommittee D18.12 Rock Mechanics

Journal Reviews: Geology, JGR, GRL, Tectonophysics, G3, GJI, PAGEO, Island Arc, WRR, IJRMMS, Acta Geotechnica, Canadian Geotechnical Journal, Geotechnical and Geological Engineering, Geotechnical Testing Journal, Advances in Civil Engineering, Geophysics, Interpretation, SPE Journal, PETROL, Journal of Natural Gas Science and Engineering

Proposal Reviews: NSF (Geophysics, Tectonics, Instrumentation & Facilities, Eng. for Natural Hazard, CAREER), ANR (France), NERC (UK), NWO (Netherlands)

HONORS AND AWARDS:

2017 LEEDS Scholar Faculty Recognition Award
2012 2007-2011 Most Cited Article Award, TAO Journal
2008-12 Chevron Fellowship
2009-10 ConocoPhillips Geophysical Fellowship
2009 Centennial Teaching Assistant Awards, Stanford University
2006 Outstanding Student Paper Award – Tectonophysics, 2005 AGU Fall Meeting

PEER-REVIEWED PUBLICATIONS

- 2017 Kitajima, H., D. Saffer, **H. Sone**, H. Tobin, and T. Hirose: In-situ stress and pore pressure in the deep interior of the Nankai accretionary prism, IODP Site C0002, *Geophys. Res. Letter*, doi:10.1002/2017GL075127.
- 2017 Rueck, M, R. Rahner, **H. Sone**, G. Dresen: Initiation and Propagation of Mixed Mode Fractures in Granite and Sandstone, *Tectonophysics*, 717, 270-283.
- 2017 Sun, D., **H. Sone**, W. Lin, J. Cui, B. He, H. Lv, and Z. Cao: Stress state measured at ~7 km depth in the Tarim Basin, NW China, *Scientific Reports*, doi:10.1038/s41598-017-04516-9.
- 2016 **Sone, H.**, and T. Uchide: Spatiotemporal evolution of a fault shear stress patch due to viscoelastic fault zone rheology, *Tectonophysics*, doi:10.1016/j.tecto.2016.04.017.
- 2016 Boston, B., G. Moore, M. Jose Jurado, **H. Sone**: Deformation of the Nankai Trough inner accretionary prism: The role of inherited structures, *Geochem. Geophys. Geosyst.*, 17, 485-500, doi:10.1002/2015GC006185.
- 2015 Kwiatek, G., P. Martinez-Garzon, M. Bohnhoff, G. Dresen, **H. Sone**, and C. Hartline: Effects of long-term fluid injection on induced seismicity parameters and maximum magnitude at northwestern part of The Geysers geothermal field, *JGR*, 120, doi:10.1002/2015JB012362.
- 2014 Martinez-Garzon, P., G. Kwiatek, **H. Sone**, M. Bohnhoff, G. Dresen, and C. Hartline: Spatiotemporal changes, faulting regimes and source-parameters of induced seismicity: A case study from The Geysers geothermal field, *JGR*, 119, doi:10.1002/2014JB011385.
- 2014 **Sone, H.**, and M. D. Zoback: Analysis of intra-reservoir stress variations in shale gas reservoirs based on the variation of viscoelastic properties, *J. of Pet. Sci. and Eng.*, 124, 416-431, 2014.
- 2014 **Sone, H.**, and M. D. Zoback: Viscoplastic Deformation of Shale Gas Reservoir Rocks and its Long-Term Effect on the In-Situ State of Stress, *Int. J. of Rock Mech. and Mining Sci.*, 69, 120-132, 2014.
- 2013 **Sone, H.**, and M. D. Zoback: Mechanical Properties of Shale Gas Reservoir Rocks – Part 2: Ductile Creep, Brittle Strength, and Their Relation to the Elastic Modulus, *Geophysics*, 78(5), D393-D402, 2013.
- 2013 **Sone, H.**, and M. D. Zoback: Mechanical Properties of Shale Gas Reservoir Rocks – Part 1: Static and Dynamic Elastic Properties and Anisotropy, *Geophysics*, 78(5), D381-D392, 2013.
- 2011 **Sone, H.**, T. Shimamoto, D. Moore: Frictional properties of saponite-rich gouge from a serpentinite-bearing fault zone along the Gokasho-Arashima Tectonic Line, central Japan, *Journal of Structural Geology*, 2011.
- 2010 Dong, J. J., J. Y. Hsu, W. J. Wu, T. Shimamoto, J. H. Hung, E. C. Yeh, Y. H. Wu, **H. Sone**: Stress-dependence of the permeability and porosity of sandstone and shale from TCDP Hole-A, *International Journal of Rock Mechanics and Mining Science*, 2010.
- 2009 **Sone, H.**, and T. Shimamoto: Frictional resistance of faults during accelerating and decelerating earthquake slip, *Nature Geoscience*, 2, doi:10.1038/NGEO639, 2009.
- 2008 Hirono, T., M. Sakaguchi, K. Otsuki, **H. Sone**, K. Fujimoto, T. Mishima, W. Lin, W. Tanikawa, M. Tanimizu, W. Soh, E. Yeh, S. Song: Characterization of slip zone associated with the 1999 Taiwan Chi-Chi earthquake: X-ray CT image analyses and microstructural observations of the Taiwan Chelungpu fault, *Tectonophysics*, 449, 2008.
- 2008 Hashimoto, Y., O. Tadaï, M. Tanimizu, W. Tanikawa, T. Hirono, W. Lin, T. Mishima, M. Sakaguchi, W. Soh, S. R. Song, K. Aoike, T. Ishikawa, M. Murayama, K. Fujimoto, T. Fukuchi, M. Ikehara, H. Ito, H. Kikuta, M. Kinoshita, K. Masuda, T. Matsubara, O. Matsubayashi, K. Mizoguchi, N. Nakamura, K. Otsuki, T. Shimamoto, **H. Sone**, M. Takahashi: Characteristics of chlorites in seismogenic fault zones: the Taiwan Chelungpu Fault Drilling Project (TCDP) core sample, *eEarth*, 3(1), 2008.
- 2007 **Sone, H.**, H. Noda, T. Shimamoto: The Coseismic Fault Weakening Process Inferred from Frictional and Transport Properties of Fault Rocks, TCDP, *Scientific Drilling*, SP1, 2007.
- 2007 **Sone, H.**, E. Yeh, T. Nakaya, J. Hung, K. Ma, C. Wang, S. Song: Mesoscopic structural observations of cores from the Chelungpu fault system, Taiwan Chelungpu-fault Drilling Project Hole-A, Taiwan, *Terrestrial, Atmospheric, and Oceanic Sciences*, 2007.
- 2007 Yeh, E., **H. Sone**, T. Nakaya, K. Ian, S. Song, J. Hung, W. Lin, T. Hirono, C. Wang, K. Ma, W. Soh, M. Kinoshita: Core Description and characteristics of fault zones from the Hole-A of the Taiwan Chelungpu-Fault Drilling Project, *Terrestrial, Atmospheric, and Oceanic Sciences*, 2007.
- 2007 Hirono, T., E. Yeh, W. Lin, **H. Sone**, et al.: Nondestructive continuous physical property measurements of

- core samples recovered from hole B, Taiwan Chelungpu-Fault Drilling Project, *Journal of Geophysical Research*, 2007.
- 2007 Ikehara, M., T. Hirono, O. Tadai, M. Sakaguchi, H. Kikuta, T. Fukuchi, T. Mishima, N. Nakamura, K. Aoike, K. Fujimoto, Y. Hashimoto, T. Ishikawa, H. Ito, M. Kinoshita, W. Lin, K. Masuda, T. Matsubara, O. Matsubayashi, K. Mizoguchi, M. Murayama, K. Otsuki, **H. Sone**, et al.: Low total inorganic carbon contents within the Taiwan Chelungpu fault system, *Geochemical Journal*, 41, 2007.
- 2006 **Sone, H.**, T. Hirose, S. Uehara, H. Noda, Y. Aizawa, K. Mizoguchi, W. Tanikawa, A. Tsutsumi, T. Shimamoto: Rock Deformation Apparatuses at Kyoto University, *Japanese Journal of Structural Geology*, 49, 2006.
- 2006 Ma, K., H. Tanaka, S. Song, C. Wang, J. Hung, Y. Tsai, J. Mori, Y. Song, E. Yeh, W. Soh, **H. Sone**, L. Kuo, H. Wu: Slip Zone and Energetics of a Large Earthquake: Results from the Taiwan Chelungpu-fault Drilling Project, *Nature*, 2006.
- 2006 Hirono, T., W. Lin, E. Yeh, W. Soh, Y. Hashimoto, **H. Sone**, O. Matsubayashi, K. Aoike, H. Ito, M. Kinoshita, M. Murayama, S. Song, K. Ma, J. Hung, C. Wang, Y. Tsai: High magnetic susceptibility of fault gouge within Taiwan Chelungpu fault: Nondestructive continuous measurements of physical and chemical properties in fault rocks recovered from Hole B, TCDP, *Geophysical Research Letter*, 33, 2006