

DEMIAN MICHAEL SAFFER

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APPOINTMENTS

2019-present	Director, Institute for Geophysics and Professor, Dept. Geological Sciences, UT Austin Adjunct Research Professor, Geosciences, Penn State University
2018-2019	Department Head, Geosciences, Penn. State University
2016-2018	Associate Dept. Head for Graduate Programs & Research, Department of Geosciences
2015-2016	Visiting Senior Research Fellow, University of Texas Institute for Geophysics
2012-present	Professor, Department of Geosciences, Penn. State University
2007-2012	Associate Professor, Department of Geosciences, Penn. State University
2005-2007	Assistant Professor, Department of Geosciences, Penn. State University
2001-2004	Assistant Professor, Department of Geology & Geophysics, University of Wyoming
1999-2001	NRC Research Associate, USGS, Menlo Park, California
1999-2001	Research Fellow, IGPP, University of California Santa Cruz

EDUCATION

1999	PhD, Earth Sciences	University of California, Santa Cruz
1995	B.A., Geology, <i>summa cum laude</i>	Williams College

HONORS AND AWARDS

2019-present	Scott Petty, Jr. Endowed Chair, Univ. Texas, Austin
2014	Paul F. Robertson Award, Penn State EMS Breakthrough of the Year
2011	The Island Arc Award (best paper award, Wiley Blackwell)
2011	Research Accomplishment Award, Penn State Energy Institute
2010-2011	Consortium for Ocean Leadership Distinguished Lecturer
2009	Friedrich Wilhelm Bessel Research Award , Alexander von Humboldt Foundation
2006	Kavli Fellow ; invited participant in 12 th annual National Academy of Sciences – Alexander von Humboldt Foundation “Frontiers of Science” symposium.
2006	Senior Fellow, Geological Society of America
2005	Donath Medalist (Geological Society of America’s young scientist award)
2004	Invited, Joint DFG-NSF Conference for outstanding young researchers, Wash. DC
1999-2001	National Research Council Postdoctoral Associateship
1998-1999	Teaching Assistant of the Year, Campus-wide award, U.C. Santa Cruz
1998-1999	Teaching Assistant of the Year, Earth Sciences Board, U.C. Santa Cruz
1995	National Science Foundation Graduate Fellowship
1995	David N. Major Prize in Geology, Williams College
1995	Geological Society of America, Outstanding Student Presentation

SIGNIFICANT RESEARCH & LEADERSHIP ACTIVITIES

2016-2020	GeoPRISMS Office and Steering Committee Chair
2018-2019	Co-chief scientist, IODP Expedition 358: Deep Riser Plate Boundary, Nankai Trough
2018	Co-chief scientist, IODP Expedition 375: Hikurangi Subduction Margin
2016	Co-chief scientist, IODP Expedition 365: Nankai Trough Observatories
2013	Co-chief scientist, IODP Expedition 348: NanTroSEIZE Deep Riser Drilling
2012-2014	Water Science Task Force (EMS rep. on 5-member University-wide committee)
2011-2012	Project Management Team: <i>Japan Trench Fast Earthquake Drilling Project (J-FAST)</i> : rapid response drilling after March 2011 Tohoku Earthquake.
2010-2011	Integrated Ocean Drilling Program renewal: Science plan writing committee (<i>one of 14 invited authors to represent international community of >600</i>)
2010	Writing committee, MARGINS Successor Program Science Plan

2009 Co-chief scientist, IODP Expedition #319 (*first riser drilling in IODP*)
2006-present Specialty Coordinator, Rock Physical Properties, NanTroSEIZE drilling project

RESEARCH INTERESTS

Subseafloor instrumentation Geomechanics; coupled deformation and fluid flow
Role of fluids in fault and earthquake mechanics Regional scale fluid, solute, and heat transport

COURSES TAUGHT

The University of Texas:

GEO291: Subduction Geomechanics (graduate seminar; co-taught)

The Pennsylvania State University:

GEOSC 440: Marine Geology (upper level Undergraduate course)
GEOSC 452: Hydrogeology (upper level Undergraduate course)
GEOSC 542: Groundwater Modeling (Graduate lecture course)
GEOSC 597: Techniques in Experimental Rock Mechanics (Graduate course; co-taught)
GEOSC 597/598: Various Geomechanics/Subduction Zones Seminars (Graduate seminars)
EARTH 111/111-U: Water: Science and Society (General education; co-taught)

University of Wyoming:

GEOL 5200: Crustal Geomechanics: Faults, Fracture, and Fluids (Graduate course)
GEOL 4200: Fluids in Geologic Processes (Graduate course)
GEOL 4444/5444: Geohydrology (Undergraduate course)
GEOL 1070: The Earth: Its Physical Environment (Gen-ed course for education students)

PUBLICATIONS AND PAPERS IN PRESS (PEER-REVIEWED)

(*Google scholar: n=7769; h-index = 48; !10-index = 112*)

§ Primary advisor for student or post-doctoral first author

‡ Co-advisor for student or post-doctoral first author

Advisor/Co-advisor for student or post-doctoral first author's work specific to the publication

* Student lead author

- 142) §Miller, P.K., **D.M. Saffer**, G.A. Abers, D.J. Shillington, K.M. Keranen, A. Bécel, J. Li, C. Bate (2020), Entrained and foliated sediment: a cause of low velocity zones on subduction megathrusts, *Nature Geoscience*, accepted pending revision.
- 141) ‡Im, K., **Saffer, D.M.**, Marone, C., Avouac, J-P. (2020), Slip-rate-dependent friction as a universal mechanism for slow slip events, *Nature Geoscience*, doi: 10.1038/s41561-020-0627-9
- 140) §Sun, T., Ellis, S., **Saffer, D.M.** (2020), Mechanical and hydrological effects of seamount subduction on megathrust stress and slip, *Nature Geoscience*, 13, 249–255, doi: 10.1038/s41561-020-0542-0.
- 139) Barnes, P.M., Wallace, L.M., **Saffer, D.M.**, et al. (2020), Slow slip source characterized by lithological and geometric heterogeneity, *Sci. Adv.*, 6, 10.1126/sciadv.aay3314.
- 138) §Kenigsberg, A.R., J. Rivière, C. Marone, **D.M. Saffer** (2020), A method for determining absolute ultrasonic velocities and elastic properties of experimental shear zones, *Int. Jour. Rock Mech. Mining Sci.*, 130, doi: 10.1016/j.ijrmms.2020.104306.
- 137) ‡Sun, T., Ellis, S., **Saffer, D.M.** (2020), Coupled Evolution of Deformation, Pore Fluid Pressure, and Fluid Flow in Subduction Forearcs, *J. Geophys. Res.*, 125, e2019JB019101, doi: 10.1029/2019JB019101.
- 136) Cook, A. E., Paganoni, M., Clennell, M. B., McNamara, D. D., Nole, M., Wang, X., Han, S., Bell, R.E., Solomon, E.A., **Saffer, D.M.**, et al. (2020), Physical properties and gas hydrate at a near-seafloor

- thrust fault, Hikurangi Margin, New Zealand, *Geophys. Res. Lett.*, 47, e2020GL088474, doi: 10.1029/2020GL088474
- 135) ‡Kenigsberg, A.R., Rivière, J., Marone, C., **Saffer, D.M.**, (2020) Evolution of Elastic and Mechanical Properties during Fault Shear: The Roles of Clay Content, Fabric Development, and Porosity, *J. Geophys. Res.*, 125, e2019JB018612, doi: 10.1029/2019JB018612.
- 134) Kimura, G., Yabe, S., Maison, T., Yamaguchi A., Hamada, Y., Fukuchi, R., Kido, Y., Maeda, L., Toczko, S., Ogawa, N., Morioka, H., Ujiie, K., and **Saffer, D.** (2020), Micro-tectonic evidence of co-seismic fast and inter-seismic slow slips on frontal megathrust in subduction zone, *in review*, *Earth Planet. Sci. Lett.*
- 133) #Rösner, A. Ikari, M.J., **Saffer, D.M.**, Stanislawski, K., Eijsink, A.M., Kopf, A.J. (2020), Friction experiments under in-situ stress reveals unexpected velocity-weakening in Nankai accretionary prism samples, *Earth Planet. Sci. Lett.*, 538, 116180, doi: 10.1016/j.epsl.2020.116180.
- 132) Ikari, M., Wilckens, F.K., **Saffer, D.M.** (2020), Implications of Basement Rock Alteration in the Nankai Trough, Japan for Subduction Megathrust Slip Behavior, *Tectonophysics.*, 774, doi: 10.1016/j.tecto.2019.228275.
- 131) §Kenigsberg, A.R., Rivière, J., Marone, C., **Saffer, D.M.** (2019), The Effects of Shear Strain, Fabric, and Porosity Evolution on Elastic and Mechanical Properties of Clay-Rich Fault Gouge, *J. Geophys. Res.*, doi:10.1029/2019JB017944
- 130) §Valdez, R.D., Kitajima, H., **Saffer, D.** (2019), Effects of temperature on the frictional behavior of material from the Alpine Fault Zone, New Zealand, *Tectonophysics.*, 762, 17-27, doi: 10.1016/j.tecto.2019.04.022.
- 129) Fagereng, A., Savage, H.M., Morgan, J.K., Wang, M., Meneghini, F., Barnes, P.M., Bell, R., Kitajima, H., McNamara, D.D., **Saffer, D.M.**, Wallace, L.M., Petronotis, K., LeVay, L., and the IODP Expedition 372/375 Scientists (2019), Mixed deformation styles observed on a shallow subduction thrust, Hikurangi margin, New Zealand, *Geology*, doi.:10.1130/G46367.1
- 128) Brodsky, E.E., James J Mori, Louise Anderson, Frederick M Chester, Marianne Conin, Eric M Dunham, Nobu Eguchi, Patrick M Fulton, Ryota Hino, Takehiro Hirose, Matt J Ikari, Tsuyoshi Ishikawa, Tamara Jeppson, Yasuyuki Kano, James Kirkpatrick, Shuichi Kodaira, Weiren Lin, Yasuyuki Nakamura, Hannah S Rabinowitz, Christine Regalla, Francesca Remitti, Christie Rowe, **Demian M Saffer**, Saneatsu Saito, James Sample, Yoshinori Sanada, Heather M Savage, Tianhaozhe Sun, Sean Toczko, Kohtaro Ujiie, Monica Wolfson-Schwehr, Tao Yang (2019), The state of stress on the fault before, during, and after a major earthquake, *Annual Review of Earth & Planetary Sciences*, 48, doi: 10.1146/annurev-earth-053018-060507.
- 127) §Kinoshita, C., **Saffer, D.** (2018), In situ permeability and scale dependence of an active accretionary prism determined from cross-borehole experiments, *Geophys. Res. Lett.*, 45, doi:10.1029/2018GL078304.
- 126) ‡Leeman, J.R., Marone, C., **Saffer, D.M.** (2018), Frictional mechanics of slow earthquakes, *J. Geophys. Res.*, 123, doi:10.1029/2018JB015768.
- 125) #Gao, B., Flemings, P.B., Nikolinakou, M.A., **Saffer, D.M.**, Heidari, M. (2018), Mechanics of fold-and-thrusts belts based on geomechanical modeling. *J. Geophys. Res.*, 123. doi:10.1029/2018JB015434.
- 124) Machida, Y., Araki, E., Kimura, T., **Saffer, D.M.**, Saruhashi, T., Yokoyama, T., & Sakurai, N. (2018). Installation of a high sensitivity ocean borehole strainmeter in the Nankai trough under severe sea current conditions, *Marine Technology Society Journal*, 52, 128-137. doi:10.4031/MTSJ.52.3.2.
- 123) *Li, J., Shillington, D.J., **Saffer, D.M.**, Bécel, A., Nedimović, M., Kuehn, H., Webb, S., Keranen, K., G. Abers (2018), Connections between subducted sediment, pore-fluid pressure, and earthquake behavior along the Alaska megathrust, *Geology*, 46, p. 299-302, doi:10.1130/G39557.1

- 122) §Kinoshita, C., **Saffer, D.M.**, Kopf, A. Rösner, L. M. Wallace, E. Araki, T. Kimura, Y. Machida, R. Kobayashi, E. Davis, S. Toczko, S. Carr (2018), Changes in physical properties of the Nankai Trough megasplay fault induced by earthquakes, detected by continuous pressure monitoring, *J. Geophys. Res.*, 123. doi:10.1002/2017JB014924
- 121) Flemings, P.B., **Saffer, D.M.** (2018), Pressure and Stress Prediction in the Nankai Accretionary Prism: A Critical State Soil Mechanics and Porosity-based approach, *J. Geophys. Res.*, 23. doi:10.1002/2017JB015025
- 120) #Hüpers, A., **D.M. Saffer**, A.J. Kopf (2018), Lithostratigraphic controls on dewatering and fluid pressure in the western Nankai subduction zone: Implications for drainage behavior and consolidation state of the underthrust sequence, *in* Byrne, T., Underwood, M.B., Fisher, D., McNeill, L., Saffer, D., Ujiie, K., and Yamaguchi, A., eds., *Geology and Tectonics of Subduction Zones: A Tribute to Gaku Kimura: Geol. Soc. Am. Special Paper 534*, p. 51–68, doi:10.1130/2018.2534(03).
- 119) Araki, A., **D. Saffer**, T. Kimura, Y. Machida, K. Kawaguchi (2018), Seafloor Borehole Observatory Array for Monitoring Slow Slip Events in the Nankai Trough Seismogenic Zone, *OCEANS-MTS/IEEE Kobe Techno-Oceans (OTO)*, 1-4.
- 118) #Han, S., Nathan Bangs, S. Carbotte, **D.M. Saffer**, and J. Gibson (2017), Links Between Sediment Consolidation and Cascadia Megathrust Slip Behavior, *Nature Geoscience*, 10, 954–959, doi:10.1038/s41561-017-0007-2.
- 117) §Kitajima, H., **D.M. Saffer**, H. Sone, H. Tobin, T. Hirose (2017), In-situ stress and pore pressure in the deep interior of the Nankai accretionary prism, IODP Site C0002, *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL075127.
- 116) §Lauer R.M., **D.M. Saffer**, and R.N. Harris (2017), Links between clay transformation and earthquakes along the Costa Rican subduction margin, *Geophys. Res. Lett.*, 44, 7725–7732, doi:10.1002/2017GL073744.
- 115) Araki, E., **D.M. Saffer**, A.J. Kopf, L.M. Wallace, T. Kimura, Y. Machida, S. Ide (2017), Recurring and triggered slow-slip events near the trench at the Nankai Trough subduction megathrust, *Science*, 356, 1157–1160, doi: 10.1126/science.aan3120 (*corresponding author*).
- 114) **Saffer, D.M.** (2017), Mapping fluids to subduction megathrust locking and slip behavior, *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL075381.
- 113) Brodsky, E.E., **D. Saffer**, P. Fulton, F. Chester, M. Conin, K. Huffman, J.C. Moore, and H.-Y. Wu (2017), The postearthquake stress state on the Tohoku megathrust as constrained by reanalysis of the JFAST breakout data, *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL074027.
- 112) Bécel, A., Shillington, D. J., Delescluse, M., Nedimović, M.R., Abers, G.A., **Saffer, D.M.**, Kuehn, H. (2017), Tsunamigenic structures in a creeping section of the Alaska subduction zone, *Nature Geoscience*, 10, 609–613, doi:10.1038/ngeo2990.
- 111) *Li, X., Z. Feng, G. Han, D. Elsworth, C. Marone, **D. Saffer**, D-S Cheon (2017) Permeability Evolution of Propped Artificial Fractures in Green River Shale, *Rock Mechanics and Rock Engineering*, 50, 1473–1485, doi:10.1007/s00603-017-1186-2.
- 110) §H. Kitajima, M. Takahashi, M. Otsubo, **D.M. Saffer**, G. Kimura (2017), Strength of the Shimanto accretionary complex across the Nobeoka thrust, *The Island Arc*, 26, doi:10.1111/iar.12192.
- 109) Brown, K.M., D. Peoppe, M. Josh, J. Sample, E. Even, H. Tobin, **D. Saffer**, T. Hirose, T. Kulongoski, S. Toczko, L. Maeda, et al. (2017), The action of water films at Å-scales in the Earth: Implications for the Nankai subduction system, *Earth Planet. Sci. Lett.*, 463, 266–276, doi:10.1016/j.epsl.2016.12.042.
- 108) **Saffer, D.M.**, and A.J. Kopf (2016), Boron desorption and fractionation in Subduction Zone Fore Arcs: Implications for the sources and transport of deep fluids, *Geochem. Geophys. Geosyst.*, 17, doi:10.1002/2016GC006635 (*AGU Research Spotlight in EOS; editor's highlight*).

- 107) *Wojatschke, J., M.M. Scuderi,^[SEP]L.N. Warr, B.M. Carpenter, **D. Saffer**, and C. Marone (2016), Experimental constraints on the relationship between clay abundance, clay fabric, and frictional behavior for the Central Deforming Zone of the San Andreas Fault, *Geochem. Geophys. Geosyst.*, 17, doi:10.1002/2016GC006500.
- 106) Wallace, L.M., E. Araki, **Saffer, D.M.**, X. Wang, A. Roesner, A. Kopf, et al. (2016), Near-field observations of an offshore M_w 6.0 earthquake from an integrated seafloor and subseafloor monitoring network at the Nankai Trough, southwest Japan, ^[SEP]*J. Geophys. Res. Solid Earth*, 121, doi:10.1002/2016JB013417.
- 105) §Huffman, K.A., **Saffer, D.M.** & Dugan, B. (2016), In situ stress magnitude and rock^[SEP] strength in the Nankai accretionary complex: a novel approach using paired constraints from downhole data in two wells, *Earth Planets Space*, 68. doi:10.1186/s40623-016-0491-4.
- 104) §Leeman, J. R., R.D. Valdez, R.B. Alley, S. Anandakrishnan, and **D.M. Saffer** (2016), Mechanical and hydrologic properties of Whillans Ice Stream till: Implications for basal strength and stick-slip failure, *J. Geophys. Res. Earth Surf.*, 120, doi:10.1002/2016JF003863.
- 103) ‡Leeman, J.R., **Saffer, D.M.**, Scuderi, M.M., and Marone, C. (2016), Laboratory Observations of Slow Earthquakes and the Spectrum of Tectonic Fault Slip Modes, *Nature Communications*, 7:11104 | DOI: 10.1038/ncomms11104.
- 102) §Huffman, K.A., and **D.M. Saffer** (2016), In situ stress magnitudes at the toe of the Nankai Trough Accretionary Prism, offshore Shikoku Island, Japan. *J. Geophys. Res.*, 120, doi: 10.1002/2015JB012415.
- 101) *Li, X., Z. Feng, G. Han, D. Elsworth, C. Marone, **D. Saffer**, D-S. Cheon (2016), Breakdown Pressure and Fracture Surface Morphology of Hydraulic Fracturing in Shale with H₂O, CO₂ and N₂ *Geomechanics and Geophysics for Geo-Energy and Geo-Resources*, 2, 63-76, doi:10.1007/s40948-016-0022-6.
- 100) **Saffer, D.M.** (2015), The Permeability of Active Subduction Plate Boundary Faults, *Geofluids*, 15, 193-215, doi: 10.1111/gfl.12103.
- 99) **Saffer, D.M.**, and Wallace, L.M. (2015), The frictional, hydrologic, metamorphic and thermal habitat of shallow slow earthquakes, *Nature Geoscience*, 8, 594–600, doi:10.1038/ngeo2490.
- 98) §Lauer, R.M., and **D.M. Saffer** (2015), The impact of splay faults on fluid flow, solute transport, and pore pressure distribution in subduction zones: A case study offshore the Nicoya Peninsula, Costa Rica, *Geochem. Geophys. Geosyst.*, 16, 1089–1104, doi:10.1002/2014GC005638.
- 97) ‡Carpenter, B.M., **D.M. Saffer**, and C. Marone (2015), Frictional properties of the active San Andreas Fault at SAFOD: Implications for fault strength and slip behavior, *J. Geophys. Res.*, 120, 5273–5289, doi:10.1002/2015JB011963.
- 96) ‡Ikari, M.J., Kameda, J., **Saffer, D.M.**, Kopf A.J. (2015), Strength characteristics of Japan Trench borehole samples in the high-slip region of the 2011 Tohoku-Oki earthquake, *Earth Planet. Sci. Lett.*, 412, 35-41, doi:10.1016/j.epsl.2014.12.014.
- 95) ‡Leeman, J.R., Scuderi, M.M., Marone, C., and **Saffer, D.M.** (2015), Stiffness evolution of granular layers and the origin of repetitive, slow, stick-slip frictional sliding, *Granular Matter*, 17:447–457, doi 10.1007/s10035-015-0565-1.
- 94) ‡Scuderi, M.M., H. Kitajima, B.M. Carpenter, **D.M. Saffer**, and C. Marone (2015), Evolution of permeability across the transition from brittle failure to cataclastic flow in porous siltstone, *Geochem. Geophys. Geosyst.*, 16, 2980–2993, doi:10.1002/2015GC005932.
- 93) §Valdez, R.D., Lauer, R.M., Ikari, M.J., Kitajima, H, and **Saffer, D.M.** (2015), Data report: Permeability and Consolidation behavior of sediments from the N. Japan Trench subduction zone, IODP Site C0019, in F.M. Chester et al. (eds.), *Proc. IODP*, 343/343T.

- 92) Marone, C., and **Saffer, D.M.** (2015), The Mechanics of Frictional Healing and Slip Instability During the Seismic Cycle, *in*: Kanamori, H., et al. (Eds.), *Treatise on Geophysics, 2nd Edition*, Elsevier, Oxford, UK.
- 91) Hornbach, M.J., M. Manga, M. Genecov, R. Valdez, P. Miller, **D. Saffer**, E. Adelstein, S. Lafuerza, T. Adachi, C. Breitzkreuz, et al. (2015), Permeability and pressure measurements in Lesser Antilles submarine slides: Evidence for pressure-driven slow-slip failure, *J. Geophys. Res.*, 120, 7986–8011, doi:10.1002/2015JB012061.
- 90) *Li, J., D.J. Shillington, A. Bécel, M.R. Nedimović, S.C. Webb, **D.M. Saffer**, K.M. Keranen, and H. Kuehn (2015), Downdip variations in seismic reflection character: Implications for fault structure and seismogenic behavior in the Alaska subduction zone, *J. Geophys. Res.*, 120, doi:10.1002/2015JB012338.
- 89) Lin, W., T.B. Byrne, M. Kinoshita, L.C. McNeill, C. Chang, J.C. Lewis, Y. Yamamoto, **D.M. Saffer**, et al. (2015), Distribution of stress state in the Nankai subduction zone, southwest Japan and a comparison with Japan Trench, *Tectonophys.*, <http://dx.doi.org/10.1016/j.tecto.2015.05.008>.
- 88) Ellis, S., A.Fagereng, S. Henrys, D. Barker, **D. Saffer**, L. Wallace, C. Williams, and S. Buiter (2015), Fluid budgets along the northern Hikurangi subduction margin, New Zealand: the effect of a subducting seamount on fluid pressure, *Geophys. J. Int.*, 202, 277-297, doi: 10.1093/gji/ggv127.
- 87) ‡Haines, S.H., Marone, C., **Saffer, D.M.** (2014), Frictional properties of low-angle normal fault gouges and implication for low-angle normal fault slip, *Earth Planet. Sci. Lett.*, 408, 57-65, <http://dx.doi.org/10.1016/j.epsl.2014.09.034>
- 86) §Kitajima, H., and **D.M. Saffer** (2014), Consolidation state of incoming sediments to the Nankai Trough subduction zone: Implications for sediment deformation and properties, *Geochem. Geophys. Geosyst.*, 15, 2821–2839, doi:10.1002/2014GC005360.
- 85) ‡den Hartog, S.A., **Saffer, D.M.**, Spiers, C.J. (2014), The roles of quartz and water in controlling unstable slip in phyllosilicate-rich megathrust fault gouges, *Earth, Planets, Space (Frontier Article)*, 66:78, doi:10.1186/1880-5981-66-78,
- 84) ‡Leeman, John R., Scuderi, M.M., Marone, C., **Saffer, D.M.**, and Shinbrot, T. (2014), On the Origin and Evolution of Electrical Signals During Frictional Stick Slip in Sheared Granular Material, *J. Geophys. Res.*, 119, 4253–4268, doi:10.1002/2013JB010793.
- 83) §Carpenter, B.M., Kitajima, H., and **Saffer, D.M.** (2014), Hydraulic and acoustic properties of the active Alpine Fault, New Zealand: Laboratory measurements on DFDP-1 drill core, *Earth Planet. Sci. Lett.*, 390, 45-51, doi:10.1016/j.epsl.2013.12.023 (*corresponding author*).
- 82) ‡Ikari, M.J., Marone, C., **Saffer, D.M.**, and Kopf, A.J. (2013), Slip Weakening as a mechanism for slow earthquakes, *Nature Geoscience*, doi: 10.1038/NGEO1818.
- 81) **Saffer, D.M.**, et al. (2013), In situ stress and pore pressure in the Kumano forearc basin, offshore SW Honshu from down-hole measurements during riser drilling, *Geochem., Geophys., Geosyst.*, doi:10.1002/ggge.20051.
- 80) §Sacks, A.F., **Saffer, D.M.**, and Fisher, D.M. (2013), Analysis of Normal Fault Populations in the Kumano Forearc Basin, Nankai Trough, Japan: 2. Principal Axes of Stress and Strain from Inversion of Fault Orientations, *Geochem., Geophys., Geosyst.*, 14, doi:10.1002/ggge.20118.
- 79) ‡M.J. Ikari, A. Niemeijer, C. Spiers, A.J. Kopf, **D.M. Saffer** (2013), Experimental evidence linking slip instability with seafloor lithology and topography at the Costa Rica convergent margin, *Geology*, doi:10.1130/G33956.1.
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- 77) §Song, I., Rathbun, A.P., and **Saffer, D.M.** (2013), Uncertainty analysis for the determination of permeability and specific storage from the pulse- transient technique, *Int. Jour. Rock Mech. Mining Sci.*, 64, doi: 10.1016/j.ijrmms.2013.08.032.
- 76) T. Ito, A. Funato, W. Lin, M-L. Doan, D.F. Boutt, Y. Kano, H. Ito, **D.M. Saffer**, L.C. McNeill, T. Byrne, and K-T. Moe (2013), Determination of stress state in deep subsea formation by combination of hydraulic fracturing in situ test and core analysis: A case study in the IODP Expedition 319, *J. Geophys. Res.*, doi: 10.1002/jgrb.50086.
- 75) W-L. Lin, and 37 others (**including Saffer**) (2013), Stress State in the Largest Displacement Area of the 2011 Tohoku-Oki Earthquake, *Science*, 339, doi: 10.1126/science.1229379.
- 74) ‡Haines, S.H, Kaproth, B., Marone, C., **Saffer, D.M.**, and van der Pluijm, B. (2013), Shear zones in clay-rich fault gouge: A laboratory study of fabric development and evolution, *J. Struct. Geol.*, 51, <http://dx.doi.org/10.1016/j.jsg.2013.01.002>
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 - 9) Araki, E., Byrne, T., McNeill, L., **Saffer, D.**, Eguchi, N., Takahashi, K., and Toczko, S. (2009), NanTroSEIZE Stage 2: NanTroSEIZE riser/riserless observatory, *IODP Sci. Prosp.*, 319. doi:10.2204/iodp.sp.319.2009.
 - 8) Bangs, N., Reed, D., **Saffer, D.M.**, and Schwartz, S.Y. (2009), Report of 2008 MARGINS-SEIZE Workshop: The Next Decade of The Seismogenic Zone Experiment, MARGINS Newsletter #22.
 - 7) Morgan, J., Screaton, E.J., with advice from N. Bangs, **D. Saffer**, and S. Bilek (2008), The SEIZE Initiative: Status and Future Directions, MARGINS Newsletter #20.
 - 6) Tobin, H., Kinoshita, M., Underwood, M., Kimura, G., **Saffer, D.**, Screaton, E., and Moore, G. (2006), NanTroSEIZE: IODP's First Complex Drilling Project, *JOI Newsletter*.
 - 5) **Saffer, D.M.** (2004), Surface water hydrology and shallow groundwater effects of coalbed methane development, upper Beaver drainage, Powder River Basin, WY, report to Western Resources Project Foundation, 40 pp.
 - 4) Harris, R.N., D.S. Chapman, K.P. Furlong, **D.M. Saffer** (2004), Thermal processes in the context of EarthScope, *EOS*, 85, 292.
 - 3) Harris, R.N., D.S. Chapman, K.P. Furlong, **D.M. Saffer** (2004), Thermal processes in the context of EarthScope, *report to NSF-EAR (Earthscape)*, 39 pp.
 - 2) Orange, D., **Saffer, D.M.**, Jeanjean, P., Khafaji, Z., Riley, G., and Humphrey, G. (2003), Measurements and modeling of the pore pressure regime at the Sigsbee escarpment: Successful prediction of overpressure and ground-truthing with borehole measurements, *Proceedings of the Offshore Technology Conference, paper #15201*.
 - 1) **Saffer, D.**, et al. (1997), Vent survey by TV-Sled Explos, in Suess, Erwin, and Bohrmann, Gerhard (eds.), RV Sonne Cruise Report SO110, GEOMAR, Kiel, Germany.

FUNDING HISTORY

- 2019-2021: Wastewater Management Council, PSU:** Fate and Transport of Poly- and Perfluoroalkyl substances (PFAS) in the Living Filter vadose zone, \$47,833, *Lead PI*.
- 2018-2022: US Science Support Program:** Expedition 358 Chief Scientist Support, \$119,600, *Sole PI*.
- 2018-2021: US Science Support Program:** Expedition 375 Chief Scientist Support, \$162,990, *Sole PI*.
- 2018-2019: US Science Support Program:** Laboratory measurement of elastic wavespeeds and permeability of fault rocks and subduction inputs: Hikurangi Subduction Margin, \$17,998, *Sole PI*.
- 2018-2019: US Science Support Program:** Studying the locking and shallow slow slip of the Nankai subduction fault by jointly investigating borehole fluid pressure and seafloor GPS observations, \$17,986, *Sole PI (proposal written by T. Sun, advised by Saffer)*.
- 2017-2020: Penn State OPP/Environmental Health & Safety:** Controls on the Transport, Storage, and Fate of PFOA and PFOS at the Penn State Fire Training Site, \$110,000, *Lead PI, with K. Freeman, T. Russo, L. Kump*.

- 2017-2018:** National Science Foundation, SBIR: SBIR Phase I: Development and testing of a dry fracture technique to reduce water use and increase life cycle yield in oil and gas extraction, \$300,000 (\$75,000 Penn State Budget), *co-I with C. Marone, D. Elsworth*.
- 2016-2020:** National Science Foundation, Integrated Earth Systems: Collaborative Research: Controls on along-strike variations in locked and creeping megathrust behavior at the Hikurangi convergent margin, \$369,723, *Sole PI at Penn State*.
- 2016-2020:** National Science Foundation, GeoPRISMS: GeoPRISMS Office Support, \$1,446,000 (\$1,280,000 primary; \$166,000 supplement), *Sole PI*.
- 2016-2017:** US Science Support Program: Analysis of formation pressure data to investigate slow slip events in the Nankai Trough, \$15,000, *Sole PI*.
- 2016-2020:** US Science Support Program: Expedition 365 Chief Scientist Support, \$145,495, *Sole PI*.
- 2015-2020:** National Science Foundation, OCE-MGG: Collaborative Research: Unlocking the secrets of slow slip by drilling at the northern Hikurangi subduction margin, New Zealand: CORK observatory development and installation, PSU budget \$72,168, *Sole PI at Penn State*.
- 2014-2018:** National Science Foundation, GeoPRISMS: Collaborative Research: The Aleutian megathrust from trench to base of the seismogenic zone; integration and synthesis of laboratory, geophysical and geological data, PSU budget \$193,388, *Lead PI*.
- 2014-2015:** National Science Foundation, GeoPRISMS: GeoPRISMS Post-Doctoral Fellowship Research: Runaway slip: understanding nucleation of subduction megathrust earthquakes and slow slip precursors, \$110,000 (*proposal written by S. den Hartog, advised by Saffer & Marone*).
- 2014-2015:** Saudi Aramco, Aramco Services Company: Permeability evolution of fluid driven and propped fractures in shale, \$94,684, *Co-I with D. Elsworth and C. Marone*.
- 2014-2015:** Consortium for Ocean Leadership: New insights into the mechanical and hydraulic properties of the deep interior of the Nankai accretionary prism, \$15,000, *Sole PI*.
- 2014-2015:** Consortium for Ocean Leadership, Triaxial Strength and Deformation Experiments on Core samples from the Inner Wedge, Expedition #348, \$15,000, *Sole PI*.
- 2013-2015:** National Science Foundation, International Programs: US-Italy Collaboration: Determination of Boron Isotope Ratios in Subducted Sediments, \$30,538, *Co-I with M. Feineman*.
- 2013-2014:** National Science Foundation, OCE-Ocean Drilling: Subseafloor Observatory Science in the Nankai Trough: Analysis of Earthquakes and Hydraulic Transients, and Installation of a Community Borehole Facility, \$83,368, *Sole PI*.
- 2013-2014:** Consortium for Ocean Leadership: Expedition 348 Chief Scientist Support, \$108,508, *Sole PI*.
- 2013-2015:** Consortium for Ocean Leadership: High stress consolidation, ultrasonic, and permeability measurements: Constraints on physical properties and in situ stress along the Costa Rica Plate Interface, Expedition 344 post-cruise research, \$14,500, *Sole PI*.
- 2013-2015:** Consortium for Ocean Leadership: Laboratory measurements of rock mechanical properties on core from Sites C0002 and C0022, Expedition 338 post-cruise research, \$15,000, *Sole PI*.
- 2013-2015:** Consortium for Ocean Leadership: Expedition 338 support for Katelyn Olcott, \$6,417, *Sole PI*.
- 2012-2015:** National Science Foundation, EAR-Geophysics: Collaborative Research: Physical properties of the Alpine Fault, New Zealand: Mechanical and hydrological processes in the brittle fault core and surrounding damage zone, PSU budget \$316,000, *Lead PI at Penn State*.
- 2011-2012:** National Science Foundation, MARGINS: MARGINS Post-Doctoral Fellowship Research: Evolution of Sediment Physical Properties in the Nankai Subduction Zone and Implications for the Updip Limit of Seismogenesis, PSU budget \$165,864, *Lead PI (proposal written by H. Kitajima, advised by Saffer & Marone)*.
- 2011-2014:** Consortium for Ocean Leadership: Pore pressure analysis to estimate hydraulic parameters and

evaluate the role of aseismic pressure transients in the seismic cycle: IODP Expedition 332, \$14,650, *Sole PI*

2011-2014: Consortium for Ocean Leadership: Analysis of Observatory Data from IODP Sites C0010 and C0002: IODP Expedition 332, \$15,000, *Sole PI*.

2011-2012: National Science Foundation, Integrated Ocean Drilling Program: Collaborative Research: Development of a long-term hydrologic observatory above the seismogenic zone offshore the Kii peninsula, \$47,322 (supplement to existing award), *Lead PI*.

2011-2012: ExxonMobil Upstream Research Company: Controls on Shale Ductility: Application to Tight Gas Shale Development, \$54,000 (supplement to existing award), *Lead PI*.

2010-2011: Consortium for Ocean Leadership: Expedition 332 support for Rachel Lauer, \$6,834, *Sole PI*.

2010-2011: Consortium for Ocean Leadership: Expedition 332 salary support, \$17,994, *Sole PI*.

2010-2012: National Science Foundation, EarthScope: Laboratory Study Of Phase III SAFOD Core: Physical Properties And Mechanical Behavior Of The Active San Andreas Fault Zone, \$275,535, *Co-PI with C. Marone*.

2010-2013: ExxonMobil Upstream Research Company: Controls on Shale Ductility: Application to Tight Gas Shale Development, \$106,795, *Lead PI*.

2010-2011: Woods Hole Oceanographic Institution (subcontract): Ocean Drilling Renewal Leadership Team, \$84,858, *Sole PI*.

2010-2012: GDL Foundation: Effects of Stress States and Cementation on physical properties of mudstones in the Nankai subduction zone: Fellowship support for Hiroko Kitajima, \$9000, *Sole PI*.

2009-2012: Consortium for Ocean Leadership: Frictional and permeability measurements on core samples of subduction input material: IODP Expedition 322, \$15,000, *Sole PI*.

2009-2012: Consortium for Ocean Leadership: Experimental measurements of permeability and Vp & Vs in Core Samples: IODP Expedition 319, \$15,000, *Sole PI*.

2009-2012: Consortium for Ocean Leadership: Expedition 319 Chief Scientist Support, \$88,134, *Sole PI*.

2009-2010: Consortium for Ocean Leadership: Expedition 322 support for Matt Ikari, \$5,608, *Sole PI*.

2009-2010: National Science Foundation, EAR-IF: Acquisition of a High-Pressure High-Temperature Load and Flow-Through System for Research and Teaching, \$207,226, *Co-PI with D. Elsworth (EME Department)*.

2009-2010: National Science Foundation, Tectonics: Mechanics and Seismogenic Potential of Low Angle Normal Faults: A Field and Laboratory Investigation, \$186,048, *Lead PI*.

2008-2009: National Science Foundation, EarthScope: Collaborative Research: Laboratory Study of the Mechanics and Physical Properties of the active San Andreas Fault zone from Phase III SAFOD cores, \$29,087 (supplement to existing award), *Lead PI*.

2008-2009: National Science Foundation, Integrated Ocean Drilling Program (IODP): Collaborative Research: Laboratory Investigations of Fault-Zone Mechanical Behavior and Fluid Overpressure (EOR for IODP NanTroSEIZE Expeditions 314, 315, and 316), \$99,080 Penn State Budget, *Lead PI*.

2008-2009: Integrated Ocean Drilling Program Management International (IODP-MI): Specialty Coordinator for IODP NanTroSEIZE Complex Drilling Project, \$47,605, *Sole PI*.

2008-2010: National Science Foundation, EarthScope: Collaborative Research: Laboratory Study of the Mechanics and Physical Properties of the active San Andreas Fault zone from Phase III SAFOD cores, \$255,183 Penn State Budget, *Lead PI*.

2007-2008: Integrated Ocean Drilling Program Management International (IODP-MI): Specialty Coordinator for IODP NanTroSEIZE Complex Drilling Project, \$35,995, *Sole PI*.

2007-2010: National Science Foundation, Marine Geology & Geophysics (MGG): The Upper Transition From Seismic to Aseismic Faulting on Subduction Megathrusts, \$390,000, *Co-PI with C. Marone*.

2007-2009: American Chemical Society (Petroleum Research Fund): Fault zones in mudstone as petroleum seals and fluid conduits: A laboratory study, \$90,000, *Lead PI*.

- 2006-2009:** National Science Foundation, Integrated Ocean Drilling Program (IODP): Collaborative Research: Development of a long-term hydrologic observatory above the seismogenic zone offshore the Kii peninsula, \$465,136 Penn State Budget, *Lead PI*.
- 2006-2008:** Shell International Exploration and Production Inc.: Prediction of Pressure and Stress in Thrust Belts, \$170,000 (\$85,000 in year one with \$85,000 year two renewal option), *Co-lead PI with Flemings*.
- 2006-2007:** JOI/USSAC: Salary support for participation in Chikyu Shakedown Cruise, \$11,895, *Sole PI*.
- 2006-2007:** National Science Foundation, EarthScope: Collaborative Research: Laboratory Study of the Mechanics and Physical Properties of the San Andreas Fault and 3D SAFOD Volume, \$219,327, *Co-PI with C. Marone*.
- 2005-2010:** National Science Foundation, IODP: Collaborative Research: A 3-D seismic investigation of the Nankai Trough Plate Boundary System in the Kumano Basin, PSU budget \$156,572, *Co-PI; Sole PI at Penn State*.
- 2005-2007:** U.S. Department of Energy: 2004, Produced water and beneficial use in the Powder River Basin, WY, \$120,974, *subcontract through Colorado School of Mines, Sole PI*.
- 2003-2006:** National Science Foundation, MARGINS: Collaborative Research: Seismic Velocity, Compaction, and Pore Pressure in Underthrust Sediments, Nankai Subduction Zone, \$391,060 (\$124,833 to PSU), *Lead PI*.
- 2003-2004:** JOI/USSAC Post Cruise Research Grant: Saffer, D.M., Fluid production from underthrust sediments, Costa Rica, ODP Leg 205: \$22,475, *Sole PI*.
- 2002-2006:** National Science Foundation, Tectonics Division: A critical evaluation of hypotheses for fluid overpressure along the San Andreas Fault, California: Implications for the “Stress-heat flow paradox, \$109,846, *Lead PI*.
- 2002-2005:** National Science Foundation, Geophysics Division: Frictional constitutive behavior of natural fault gouge materials: Effects of composition, \$83,435, *Lead PI*.
- 2002-2003:** USSSP Ocean Drilling Program: Leg 205 Shipboard Scientist Support, \$26,563, *Sole PI*.
- 2002-2004:** Western Resources Project: Hydrologic effects of coal-bed methane development on shallow and deep aquifer systems in the Powder River Basin, \$68,906, *Sole PI*.
- 2001-2003:** Petroleum Research Fund, Type G grant: In situ pore pressure and consolidation: A critical evaluation of field and laboratory approaches, \$25,000, *Sole PI*.
- 2000-2002:** JOI/USSAC Post Cruise Research Grant: Hydrologic and mechanical laboratory tests of samples from the Nankai Trough, ODP Leg 190, \$20,998, *Sole PI*.

STUDENTS, POST-DOCTORAL SCHOLARS, & RESEARCH ASSOCIATES SUPERVISED

Current advisees:

Dr. Anais Ferot	Research Associate (<i>GeoPRISMS Science Coordinator</i>), 2016-present
Kalle Jahn	PhD candidate, anticipated 2021
Peter Miller	PhD candidate, anticipated 2021
Joshua Edgington	PhD student, anticipated 2023

Previous students (12 PhD; 10 MS; 13 Undergraduate) and post-doctoral scholars (6)

(listed in reverse chronological order by end date):

Dorivaldo (Alex) Santos	MS conferred, 2020
Dr. Kyungjae Im	Postdoctoral Scholar, 2019
Dr. Tian Sun	Postdoctoral Scholar, 2017- 2019
Abby Kenigsberg	PhD conferred, 2019
Robert Valdez	PhD conferred, 2018
John Leeman	PhD conferred, 2017 (co-advised with C. Marone)
Yang Xu	MS conferred, 2017 (co-advised with E. Hajek)
Chihiro Kinoshita	Visiting doctoral advisee, Univ. Kyoto, 2016-17
Jacob Hagedorn	MS conferred, 2016 (co-advised with M. Arthur)
Dr. Sabine den Hartog	Postdoctoral scholar, 2013-2015 (co-advised with C. Marone)
Peter Miller	MS conferred, 2015
Katelyn Huffman	PhD conferred, 2015
Amelia Winner	Undergraduate Researcher, 2014-2015
Mat Schon	BS senior thesis student, 2013-2014
Brandi Niles	BS senior thesis student, 2013 (co-advised with M. Arthur)
Yipeng Zhang	PhD student, 2012-2014
Rachel Lauer	PhD conferred, 2013
Dr. Hiroko Kitajima	Post-doctoral scholar, 2010-2012
Hannah Bovenizer	Undergraduate Researcher, 2012 (co-advised with M. Feineman)
Brett Carpenter	PhD conferred, 2012 (co-advised with C. Marone)
Matthew Fry	PhD student, 2011-2012 (co-advised with C. Marone)
Alison Sacks	MS conferred, 2011 (co-advised with D. Fisher)
Dr. Samuel Haines	Post-doctoral scholar, 2008-2010 (co-advised with C. Marone)
Dr. Insun Song	Research Associate / Postdoctoral Scholar, 2006-2010
Dustin Lipik	BS Senior Thesis student, 2011
John Coleman	Undergraduate independent study, 2011 (co-advised with M. Arthur)
Khairul Amri Bukhari	BS Senior Thesis student, 2011-2012
Matthew Ikari	PhD conferred, 2010 (co-advised with C. Marone)
Andrew Rathbun	PhD conferred, 2010 (co-advised with C. Marone)
Enrique Perez	MS conferred, 2010
Teo Korkmaz	Undergraduate research, 2009-2010
Marie Gildow	BS Honors Thesis student, 2009-2010
Margaret Popek	MS conferred, 2009
Nick Adamson	BS Thesis student, 2008-2009
Patrick Fulton	PhD conferred, 2008
Robert Skarbek	MS conferred, 2008
Alexander McKiernan	MS conferred, 2005
Shaun Sagan	BA Independent Study, 2005
Aaron Payne	MS conferred, 2004
Dr. Glenn Spinelli	Post-doctoral scholar, 2003-2004 (co-advised with M. Underwood)
Melanie Williams	BS Independent Study, Univ. of Wyoming, 2003
Joyce Harris	BS Independent Study, Univ. of Wyoming, 2003
Brenda Rencher-Casey	MS candidate at Univ. of Wyoming
Karl G. Taboga	PhD candidate at Univ. of Wyoming

Graduate Thesis committees (not as primary or co-advisor):

2019- (while at UT Austin; At UT Unless Otherwise Noted)

James Beimiller, PhD in progress; Landon Lockhart, PhD in progress; Srisharan Shreedharan (Penn State), PhD in progress; Chas Bolton (Penn State), PhD in progress; Thomas Battenhouse (Penn State), PhD in progress.

2005-2019 (while at Penn State; At Penn State Unless Otherwise Noted)

Kerry Ryan, PhD conferred 2019; Rui Zhang (EME dept.), PhD conferred 2019; Josh Woda, MS conferred 2019; Kelvin Nder Abaa (EME dept.), PhD conferred 2018; Beth Hoagland, PhD conferred 2018; Baiyuan Gao (Univ. TX), PhD conferred 2018; Hannah Rabinowitz (Lamont-Doherty Earth Observatory), PhD conferred 2018; Seyi Ajayi, MS conferred 2016; Tramond Baisden, MS conferred 2015; Tom Johnston, MS conferred 2015; Marco Scuderi, PhD conferred 2014; Bryan Kaproth, PhD conferred 2013; Dennis Arun Alexis, PhD conferred 2013 (EME); Sabine den Hartog, PhD conferred 2013 (Univ. Utrecht); Christopher Landry, PhD conferred 2013 (EME); Marianne Conin (CNRS, France), PhD conferred, 2011, Brian LeVay, PhD conferred, 2010; Jon Samuelson, PhD conferred, 2009; Igor Faoro (EME Dept.), PhD conferred, 2009; Joshua Taron (EME Dept.), PhD conferred, 2009; Sultan Al Enezi (EME Dept.), PhD conferred, 2009; Denis Pone (EME), PhD conferred, 2009; Daniel Wheaton, MS conferred, 2009; Basar Busbug (EME Dept.), PhD conferred, 2008; Matthew Reilly, MS conferred, 2008; Tapan Kumar Biswas (EME Dept.), MS conferred, 2008; Geoffrey Moret, PhD conferred, 2007; Hui Long, PhD conferred, 2007; Sean Culkin, MS conferred, 2007; Audrey Hucks, MS conferred, 2007; Julia Schneider, MS conferred, 2007; Garth Llewelyn, MS conferred, 2005; Jon Samuelson, MS conferred, 2005.

2001-2004 (while at Univ. WY; At Univ. WY Unless Otherwise Noted)

Jeremy Shaha, MS conferred, 2004; Matthew Hornbach, PhD conferred 2004; Paula Cutillo (UC Boulder), PhD conferred, 2003; Brian Zurek, MS conferred, 2003; Benjamin Pearson, MS conferred, 2002; Michael Marshall, MS conferred, 2002.

MAJOR WORKSHOPS AND MEETINGS CONVENED

- | | |
|-----------|--|
| 2020 | Co-convener, IODP Expedition 375 post-expedition meeting, Napier, NZ, ~70 attendees. |
| 2019 | Co-convener, IODP Expedition 365/380 post-expedition meeting, Seattle, WA, ~25 attendees. |
| 2019 | Co-convener and coordinator (<i>ex officio</i> – as GeoPRISMS Office Chair), GeoPRISMS Synthesis and Integration Theoretical & Experimental Institute, San Antonio TX, Feb. 26-Mar. 1 2019, ~180 attendees. |
| 2017 | Co-convener and coordinator (<i>ex officio</i> – as GeoPRISMS Office Chair), GeoPRISMS Rifting Initiation and Evolution Theoretical & Experimental Institute, Albuquerque NM, Feb. 7-10 2017, ~130 attendees. |
| 2015 | Co-convener, IODP Expedition 348 post-expedition meeting, Friday Harbor, WA. |
| 2012-2013 | Co-convener, NSF GeoPRISMS implementation workshop, New Zealand focus site, ~150 attendees. |
| 2011 | Co-convener, NSF GeoPRISMS Subduction Cycles and Dynamics implementation workshop, Austin TX, ~140 attendees. |
| 2011 | Co-convener, Consortium for Ocean Leadership workshop "Engaging Early Career Scientists in Future Scientific Ocean Drilling", College Station TX, ~35 attendees. |
| 2010 | Co-convener, NSF MARGINS Successor Program planning workshop, San Antonio TX, >200 attendees. |
| 2008 | Co-convener, MARGINS Seismogenic Zone Workshop, Portland OR, Sept. 22-26, ~100 participants. |
| 2008 | Co-convener (with E. Brodsky, J. Mori, and K-F. Ma), Rapid Response Drilling: Past, Present and Future, Intercontinental Drilling Program/SCEC workshop, Tokyo, Japan, ~75 participants. |

2004 Co-Convener (with 4 others), Earthscope workshop on thermal processes.

ADDITIONAL RESEARCH ACTIVITIES & FIELD WORK

Field Work, Research/Drilling Cruises, and Work Experience (Selected):

2018 IODP Expedition 375: Drilling to unlock the secrets of Slow Slip offshore NZ (Co-chief scientist)
2016 IODP Expedition 365: NanTroSEIZE Observatories (Co-chief scientist)
2013 IODP Expedition 348: NanTroSEIZE Plate Boundary Stage 3: Deep Riser (Co-chief scientist)
2013 Co-Proponent: IODP proposal, *Tracking Tsunamigenic Slips Across and Along the Japan Trench (JTRACK): Investigating a new paradigm in tsunamigenic megathrust slip with very deep-water drilling using the D/V Chikyu.*
2011 Lead Proponent: IODP proposal, *Riserless Drilling to unlock the secrets of slow slip; drilling at the N. Hikurangi subduction margin.*
2010 IODP Expedition 332: NanTroSEIZE Stage 2 Riserless Observatory (Shipboard Scientist; Observatory specialist)
2009 IODP Expedition 319: NanTroSEIZE Stage 2: Riser/Riserless Observatory (Co-chief scientist)
2008-2011 Co-coordinator, inter-lab calibration of rock mechanics and friction studies for the San Andreas Fault Drilling (SAFOD) project (with C. Marone and D. Lockner).
2007 Participant, IODP Expeditions 314-315, Oct-Nov, 2007
2006 Participant, D/V Chikyu Shimokita Shakedown Drilling Expedition, Oct. 2006
2003 CORK seafloor observatory data acquisition and servicing cruise, ODP Sites 1253/1255, offshore Costa Rica
2003 Lead U.S. proponent, IODP proposal 603-B (NanTroSEIZE Phase 2 Drilling: Mega-Splay Faults).
2003 Proponent, IODP NanTroSEIZE proposals 603-CDP (NanTroSEIZE umbrella proposal), 603-A (subduction inputs), 603-C (riser drilling), and 603-D (reference sites monitoring).
2002 ODP Leg 205 (Shipboard Scientist; Hydrogeology Specialist)
2000-2001 Independent Contractor, AOA Geophysics, Inc., Marine Division
2000 ODP Leg 190 (Shipboard Scientist; Physical Properties Specialist)
1999-2000 Staff Geologist (engineering geology), Rogers Johnson & Associates
1997 Heat flow survey and ROV seafloor mapping, Mariana Forearc
1996 ODP Leg 170 (Shore-based Scientist)
1996 R/V Sonne Research Cruise: Bathymetry and ROV seafloor mapping, Aleutian Trench
1998 Summer Intern, EXXON Exploration Company

Meeting Sessions Convened & Workshop Participation (Selected):

2018 Co-convener, "Subduction Zone Processes at the Hikurangi Margin, New Zealand", AGU Fall Meeting.
2017 Co-convener, "Subduction zone dynamics from regular earthquakes through slow earthquakes to creep", Special Session, JPGU Annual Meeting, Chiba, Japan.
2016 Co-convener, "Frontier studies on subduction zone megathrust earthquakes and tsunamis", Special Session, Joint AGU/JPGU Meeting, Chiba, Japan.
2016 Co-convener, "Models and Experiments that Couple Flow and Deformation in the Shallow Crust", AGU Fall Meeting.
2015 Co-convener, "Frontier studies on subduction zone megathrust earthquakes and tsunamis", Special Session, JPGU Annual Meeting, Chiba, Japan.
2013 Co-convener, "Slip to the Trench in Megathrust Earthquakes", Special Session, JPGU Annual Meeting, Chiba, Japan.
2011 Invited Speaker, Workshop on slow slip, Hikurangi subduction zone, August, 2011, Gisborne NZ
2010 Co-convener, "From subduction inputs to seismogenesis", Special Session, AGU Fall Meeting.
2010 Convener, "New frontiers and discoveries from scientific ocean drilling", Union Session, AGU Fall meeting.
2009 INVEST IODP Planning Workshop & Meeting, Bremen Germany.

- 2008 Co-convener, “Fluids at Convergent Margins: Synthesis of Observations, Experiments and Models”, Union Session, AGU Fall meeting.
- 2007 Shell Belaire Technology Center Workshop on Soil Mechanics, Houston, TX.
- 2006 Convener, “Fluids at plate boundaries: Agents of mechanical and chemical processes”, Topical Session, Geological Society of America fall meeting.
- 2005 Chapman conference: Radiated Energy and the Physics of Earthquake Faulting.
- 2005 Convener, “Hubbert and Rubey in the 21st Century”, Special Session, AGU Fall meeting.
- 2004 Nankai IODP cork workshop, JAMSTEC, Yukuska, Japan.
- 2003 Co-convener, “At the Seismogenic Front: Dynamic Processes at Convergent Margins”, Special Session, AGU Fall meeting.
- 2003 Earthscope Complimentary Geophysics Workshop, Denver, CO.
- 2003 Workshop on linkages between the Ocean Observatory Initiative and the IODP.
- 2002 NanTroSEIZE proposal planning workshop, Boulder, Colorado.
- 2000 Convener, "*Basin-Scale Hydrodynamic Systems: Stress State, Pore Pressure, Fluid Flow, and Deformation*", AGU Fall meeting.

INVITED PRESENTATIONS (SELECTED)

- Sept. 11, 2020 USF College of Marine Science Colloquium
- Sept. 8, 2020 Hyuga-Nada Drilling Workshop, Univ. Tokyo, Japan.
- Jan 21, 2020 Univ. CA Santa Cruz, Earth & Planetary Sciences Dept. Colloquium
- Jan 16, 2020 Stanford Univ., Geophysics Dept. Colloquium
- Dec. 14, 2019 AGU Fall Meeting, San Francisco, CA
- Sept. 21, 2019 International Joint Workshop on Slow Earthquakes (*Keynote*)
- March 28, 2019 Univ. Texas, Dept. of Geological Sciences
- Oct. 14, 2018 Univ. Texas, Austin, Petroleum Engineering Dept. Colloquium
- Sept., 2018 UK IODP 50th Anniversary Symposium, London (*Keynote*)
- Oct., 2017 Victoria Univ. Wellington, Earth Sciences Seminar
- May, 2017 Joint AGU/Japan Geoscience Union Meeting, Chiba, Japan
- April, 2017 Seismological Society of America Annual Meeting, Denver, CO
- Dec, 2016 AGU Fall Meeting, San Francisco, CA
- Sept. 26, 2016 Subduction Zone Observatories Workshop, Boise, ID (*Keynote*)
- Aug, 2016 GNS New Zealand Colloquium
- May, 2016 Joint AGU/Japan Geoscience Union Meeting, Chiba, Japan
- March 2, 2016 Hess Pore Pressure & Fracture Gradient Group, Houston, TX
- March 2, 2016 Hess Structure & Tectonics Group, Houston, TX
- Feb 23, 2016 Chapman Conference on Slow Earthquakes, Ixtapa, Mexico
- Feb 19, 2016 Univ. Texas Institute for Geophysics Seminar
- Feb 10, 2016 Earth and Atmospheric Sciences Seminar, Cornell University
- Oct 13, 2015 GeoPRISMS Subduction Cycles and Deformation Theoretical & Experimental Institute
- April 9, 2015 Woods Hole Oceanographic Institution
- March 31, 2015 University of Texas, Dept. of Geological Sciences
- March 30, 2015 University of Texas, Institute for Geophysics
- Aug 2, 2014 KANAME meeting on Great Subduction Zone Earthquakes, Sapporo Japan
- July 31, 2014 AOGS annual meeting, Sapporo Japan
- Nov 9, 2012 Weeks Lecture, Univ. Wisconsin Madison
- Oct 12, 2012 AIST, Tsukuba, Japan
- Aug 17, 2012 AOGS annual meeting, Singapore
- May 26, 2012 German Research Center SFB574 on Subduction processes, Kiel, Germany
- May 18, 2012 Princeton University
- April 27, 2012 Lamont-Doherty Earth Observatory
- March 30, 2012 Penrose conference: Fluid Flow, Material Transfer and Deformation in the Forearcs of Convergent Margins (*Keynote*).
- Feb 27, 2012 Conference on Great Earthquakes in Subduction Zones, Kochi Japan (*Keynote*)
- July 31, 2011 Public Lecture on Subduction Earthquakes, Gisborne, NZ

June 4, 2011 Southwest Oregon Community College, Geology Lecture Series
 May 16, 2011 SAFOD Workshop, Earthscope National Meeting, Austin TX
 May 2, 2011 University of Marseille, Marseille France
 April 28, 2011 New Mexico Inst. of Mining & Technology, Dept. Earth & Environmental Sciences
 April 27, 2011 Univ. of Colorado, Boulder, Dept. of Geological Sciences
 April 25, 2011 Indiana Univ. Purdue Univ. Indianapolis, Dept. of Earth Science
 April 20, 2011 University of Minnesota, Dept. of Geology & Geophysics
 Feb 3, 2011 Iowa State University, Dept. of Geological Sciences
 Nov 4, 2010 German Research Center SFB574 on Subduction processes, Pucon Chile (*Keynote*)
 Oct 14, 2010 European Science Foundation Workshop on Borehole Monitoring
 Mar 24, 2009 DrillINZ, ICDP Alpine Fault Drilling Workshop, Franz Josef Glacier, NZ
 Sept 23, 2008 NSF-MARGINS Seismogenic Zone Initiative workshop
 April, 2008 European Geophysical Union 2008 Meeting, Vienna, Austria
 Apr 8, 2008 Williams College, Geology Dept. Colloquium Series
 Feb 8, 2008 University of Michigan, Smith Lecture Series
 Jul 18, 2007 Shell Bellaire Technology Center, Houston, TX
 Jun 18, 2007 Workshop to Integrate Subduction Factory and Seismogenic Zone Studies in Central
 America, Heredia, Costa Rica (*Keynote*)
 Mar 30, 2007 University of Rochester, Dept. Earth & Environmental Sciences
 May, 2006 ICDP/IODP Fault Zone Drilling Workshop, Miyazaki, Japan
 Sept, 2005 Rice University, Dept. of Earth Science
 Mar, 2005 EarthScope National Meeting, Albuquerque, NM
 May, 2004 Workshop on Downhole Tools in the IODP, Washington, DC
 Apr, 2004 Joint DFG-NSF Conference for outstanding young researchers, Washington, DC
 Mar, 2004 The Pennsylvania State University, Dept. of Geosciences
 Oct, 2003 University of Missouri, Columbia, Dept. of Geological Sciences
 Apr, 2003 The Pennsylvania State University, Dept. of Geosciences
 Mar, 2003 NSF-MARGINS Theoretical - Experimental Institute, Snowbird, UT
 Mar, 2003 University of Minnesota, Dept. of Geology & Geophysics
 Apr, 2002 Woods Hole Oceanographic Institution, Geophysics Seminar Series
 Oct, 2001 University of Colorado, Boulder, Dept. of Geological Sciences
 Apr, 2001 University of Utah, Dept. Geology & Geophysics
 Mar, 2001 New Mexico Inst. of Mining & Technology, Dept. Earth & Environmental Sciences
 Dec, 2001 Hubbert Quorum, U.S. Geological Survey, Menlo Park, CA
 Nov, 2000 Earthquake Megaproject Group, USGS, Menlo Park, CA
 Mar, 2000 Joint ODP-Industry Workshop on overpressure in the Gulf of Mexico, Houston, TX
 Nov, 1999 The Pennsylvania State University, Dept. of Geosciences
 Dec, 1998 Cascades Volcano Observatory Vancouver, WA

SERVICE

University Committees (at Penn. State unless otherwise noted)

2018-2020	Penn State Water Council (<i>elected, 3 year term</i>)
2018-2019	Undergraduate Advisor, Dept, of Geosciences (~8 advisees)
2016-2018	Associate Dept. Head for Graduate Programs & Research, Geosciences
2016-present	Executive Committee, Geosciences
2016-present	Graduate Admissions Committee (<i>ex officio</i>)
2016-2017	Member, Faculty Search Committee (Eco-hydrology position)
2014-2015	Chair, Faculty Search Committee (Solid Earth Geosciences Position)
2014-2015	Associate Head for Graduate Programs & Research, Geosciences (<i>Interim</i>)
2014-2015	Executive Committee, Geosciences
2014-	Pulse of the Earth facility Steering Committee
2012-2014	Water Science Task Force (University-wide ad-hoc committee)
2012-2014	Chair, Faculty Search Committee (Hydrogeology position)
2012-2014	Dept. of Geosciences Tenure and Promotion Committee
2011-present	Graduate program committee, Dept. of Geosciences
2010-present	Steering committee, Marcellus Shale Center
2009-2010	Rover, Candidacy Exams, Dept. of Geosciences
2009-2010	Member, <i>ad hoc</i> committee to assess research infrastructure, College of EMS
2009	Member, <i>ad-hoc</i> planning committee for Tri-bio building, College of EMS
2008-2009	Chair, Graduate Admissions Committee
2008-2009	Executive Committee, Dept. of Geosciences
2008-2009	Member, Faculty Search Committee (CO ₂ sequestration and Sedimentary Geology positions)
2007-present	Faculty co-advisor, Geosciences Departmental Colloquium Series
2007-2008	Dept. of Geosciences Tenure and Promotion Committee
2007-2008	Graduate Admissions committee
2007-2008	Faculty Search Committee, EME Dept.
2007-2008	Faculty Search Committee, Dept. of Geosciences
2005-2009	Graduate Program Committee, Dept. of Geosciences
2002-2003	Graduate Admissions Committee (Geology & Geophysics, Univ. of Wyoming)
2002	Earth systems science center committee (Univ. of Wyoming)
2001-2003	Chair, web-site committee (Geology & Geophysics, Univ. of Wyoming)
2001-2002	Computer committee (Geology & Geophysics, Univ. of Wyoming)
2002	Coordinator for student volunteers: AAPG Rocky Mountain Section Meeting
2001-2002	Faculty Advisor, Geology Club (Geology & Geophysics, Univ. of Wyoming)

Professional Service And Outreach (Selected)

2020-present	<i>SZAD Initiative</i> Working Group, Faulting & Earthquakes
2020-present	<i>CIDER</i> Program Committee; 2021 Session
2016-2020	<i>GeoPRISMS</i> Office and Steering Committee Chair
2018	Site Visit Panel, NSF GEO-OCE
2017-2018	Co-Editor, <i>Oceanography, Special Issue: "Scientific Ocean Drilling: Looking to the Future"</i>
2016-2017	Associate Editor, <i>GSA Special Publication "Geology and Tectonics of Subduction Zones: A Tribute to Dr. Gaku Kimura"</i>
2016	Multiple Interviews for <i>Smithsonian Magazine</i> about Slow Earthquakes
2013-2016	Panel Member, NSF GEO-EAR
2014	Interview for <i>Discover Magazine</i> Story on slow earthquakes
2014	Interview for <i>Seattle Times</i> story series on subduction earthquakes and monitoring systems
2014	Feature profile in <i>Chikyu Hakken</i> , JAMSTEC outreach magazine
2013	NSF Panel Member, OCE-OD
2011-2018	San Andreas Fault Observatory at Depth (<i>SAFOD</i>) Core and Sample Committee (CoSWoG)

- 2011-2013 Project Management Team, *Japan Trench Fast Earthquake Drilling Project (J-FAST)*: IODP proposal for rapid response drilling of March 2011 Tohoku Mw 9 Earthquake.
- 2011 NSF public relations/news article and video for “*Science Nation*”: http://www.nsf.gov/news/special_reports/science_nation/earthquakes.jsp
- 2011 Member, detailed planning group (DPG), rapid response drilling for Tohoku Japan Earthquake
- 2010-2012 U.S. IODP renewal leadership team (*invited*; one of 4 team members)
- 2010-2011 Writing committee, Integrated Ocean Drilling Program New Science Plan (*invited*; one of 14 members of international team representing ocean drilling community).
- 2010-2011 Consortium for Ocean Leadership, Distinguished Lecturer
- 2010-2011 NSF-MARGINS successor program (GeoPRISMS) Steering Committee
- 2010 NSF-MARGINS successor science plan writing (MSPW) Committee
- 2009-present Guest editor, Theme issue of *Geochemistry, Geophysics, Geosystems*: Mechanics, Deformation, and Hydrologic Processes at Subduction Complexes
- 2009 Interview for Integrated Ocean Drilling Program (IODP) “INVEST” outreach video: <http://www.youtube.com/watch?v=P8tH0-q-MT0>
- 2009 Speaker, Press conference on IODP Expedition 319, Tokyo, Japan, Sept. 3
- 2009 Interviewed for Australian Broadcasting Company production of science program “*Catalyst*”.
- 2009 NSF Panel Member, OCE-MGG
- 2008-2009 Steering Committee, Charting the Future Course of Scientific Ocean Drilling Workshop
- 2008-2009 Selection Panel: Marine Geosciences Leadership Symposium, Consortium for Ocean Leadership
- 2008 U.S. Geological Survey External Grants Program, NEHRP Panel member
- 2007-2010 NSF-MARGINS Steering Committee
- 2007-2008 Geological Society of America, ad-hoc committee on Innovative Science
- 2007-2008 Interviewed for article on seafloor observatories for *Civil Engineering* magazine.
- 2007 Panel member, AGU Press conference on NanTroSEIZE drilling program, Dec. 12.
- 2006 Interviewed for *Discovery Science News* article (by L. O’Hanlon).
- 2006 U.S. Geological Survey External Grants Program, NEHRP Panel member
- 2003-2006 IODP Science Steering and Evaluation Panel (SSEPs) member
- 2003-2004 Contributor, NSF MARGINS SEIZE science plan
- 2003 Physical properties editor, Post-Cruise Editorial Meeting, ODP Leg 205 Initial Reports.
- 2000 Physical properties editor, Post-Cruise Editorial Meeting, ODP Leg 190 Initial Reports.

PROFESSIONAL AND INDUSTRIAL ASSOCIATIONS

American Geophysical Union (AGU), Geological Society of America (GSA), American Academy for the Advancement of Science (AAAS), Japan Geoscience Union (JPGU), Asia Oceania Geosciences Society (AOGS), Seismological Society of America (SSA)