

# Peter Eichhubl

## Professional Summary

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### Professional Preparation

#### Academic Background

Ph.D. Geology, University of California, Santa Barbara, September 1997

M.S. Geology, University of Vienna, Austria, June 1989

### Areas of Expertise

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Diagenesis and low-temperature geochemistry

Fault and fracture mechanics

Fluid flow and transfer processes in sedimentary basins

### Awards

#### Awards and Honorary Societies

AAPG Energy Minerals Division President's Certificate for Excellence in Presentation Award (co-author), 2012

SEPM Recognition for an Excellent Technical Presentation, SEPM Annual Meeting (co-author), 2011

Postdoctoral Fellowship, Monterey Bay Aquarium Research Institute, 1998 - 2001

G. K. Gilbert Award, Department of Geological Sciences, University of California, Santa Barbara, 1996 - 1997

Outstanding Student Research Award, Geological Society of America, 1992

Department Regents Fellowship, University of California, Santa Barbara, 1991

Recognition of Achievement, Amoco Production Corporation, 1991

University of Vienna student grant, 1990

University of Vienna student grant, 1988

University of Vienna student grant, 1987

University of Vienna Faculty of Sciences Merit Scholarship, 1985

### Service

#### University Committees

Member, Graduate Studies Committee, Jackson School of Geosciences, UT Austin, Austin, Tex., September 2016-May 2017

Member, Strategic Planning Committee, Jackson School of Geosciences, The University of Texas at Austin, June 2015-Present

## Proposal Review Panels Participation

U.S. Department of Energy (DOE) (Energy Frontier Research Centers), 2018

## Teaching and Advising

### Student Committee Supervision

Supervisor, M.S. Thesis Committee, Adenike Tokan-Laval, Understanding fluid flow in rough-walled fractures using x-ray microtomography images, The University of Texas at Austin, completed, 2015

Supervisor, M.S. Thesis Committee, Canalp Ozkul, Fracture abundance and strain in folded Cardium sandstone, Alberta fold-and-thrust belt, The University of Texas at Austin, completed, 2014

Supervisor, M.S. Thesis Committee, Yaser Al Zayer, Fracture opening kinematics in tight sandstone reservoirs, The University of Texas at Austin, completed, 2014

Co-Supervisor, M.S. Thesis Committee, Celia Xu, The University of Texas at Austin, Department of Geological Sciences, completed, 2012

Supervisor, Ph.D. Dissertation Committee, Jonathan Major, The University of Texas at Austin, in progress, 2012

Supervisor, Ph.D. Dissertation Committee, Owen Callahan, The University of Texas at Austin, in progress, 2012

Supervisor, M.S. Thesis Committee, Alex Urquhart, The University of Texas at Austin, completed, 2011

Co-Supervisor, M.S. Thesis Committee, Magdalena Ellis, The University of Texas at Austin, 2009

Co-Supervisor, M.S. Thesis Committee, Peter Hargrove, The University of Texas at Austin, Department of Geological Sciences, completed, 2009

Co-Supervisor, Ph.D. Dissertation Committee, Nick Davatzes, University of California, Stanford, 2003

### Student Committee Participation

Examining member, Ph.D. Dissertation Committee, Russell Wirkus Carter, Fluid characterization at the Cranfield CO<sub>2</sub> injection site: Quantitative seismic interpretation from rock-physics modelling and seismic inversion, The University of Texas at Austin, Austin, TX, 2014

External Examiner, Ph.D. Dr. rer. nat. Committee, Christopher Tuitz, University of Vienna, Austria, completed, 2012

Member, M.S. Reading Committee Committee, Karen Black, The University of Texas at Austin, completed, 2012

Member, Ph.D. Dissertation Committee, John Hooker, The University of Texas at Austin, reading committee, 2012

Member, Ph.D. Oral Exam Committee Committee, Harpeeth Singh, The University of Texas at Austin, Austin, Texas, 2012

Member, Ph.D. Reading Committee Committee, Margaret Dalthorp, Texas A&M University, Corpus Christi, completed, 2012

Member, Ph.D. Dissertation Committee, Lindsay Olinde, The University of Texas at Austin, orals committee, 2011

Member, Ph.D. Dissertation Committee, William Burnett, Department of Geological Sciences: The University of Texas at Austin, completed, 2011

Member, Ph.D. Dissertation Committee, Ran Chen, The University of Texas at Austin, Department of Civil Engineering, completed, 2010

Member, Ph.D. Dissertation Committee, Aysen Ozkan, Opening History of Fractures in Sandstone: The University of Texas at Austin, Department of Geological Sciences, completed, 2009

Member, M.S. Thesis Committee, Natalia Kalitynska, The University of Texas at Austin, 2006

Member, Advancement Dissertation Committee, Christie Rowe, University of California, Santa Cruz, 2005

## Presentations

### Invited Presentations

Geomechanics of CO<sub>2</sub> Reservoir Seals: presented to National Energy Technology Laboratory, presented at Mastering the Subsurface through Technology, Innovation and Collaboration: Carbon Storage and Oil and Natural Gas Technologies Review Meeting, Pittsburgh, Pa., August 1-3, 2017.

Digital rocks portal data management, visualization, and simulation: presented to Royal Microscopical Society Tomography for Scientific Advancement (ToScA), Austin, Tex., June 8, 2017.

Geomechanics of induced seismicity: presented to Department of Geology and Geophysics, University of Utah, Salt Lake City, Utah, March 24, 2017.

Natural fracture growth in unconventional hydrocarbon reservoirs: Rates, mechanisms, and implications for flow: presented to Energy and Geoscience Institute, University of Utah, Salt Lake City, Utah, March 23, 2017.

### Presentations

The Geologic Basement in Texas: Results of a New State-Wide Synthesis: presented at Geological Society of America (GSA) 2020 Annual Meeting, Montréal, Québec, Canada (virtual), October 25-28, 2020.

Structural-diagenetic analysis of cataclastic zones in glauconite sandstone, Vienna Basin, Austria: presented to Fracture Research and Application Consortium (FRAC), presented at Annual Sponsors' Meeting, Austin, Tex., November 2019.

Poroelastic Models for Fault Reactivation in Response to Injection and Production: Application to an Earthquake Sequence Near Venus, Johnson County, Texas: presented at The American Association of Petroleum Geologists 2019 Annual Convention and Exhibition, San Antonio, Tex., May 2019.

The Geology of Active Earthquake Sequences in Texas: presented at The American Association of Petroleum Geologists 2019 Annual Convention and Exhibition, San Antonio, Tex., May 2019.

Texas Basement Synthesis Project: Characterizing Geological Risk Factors of Basement-Involved Seismicity: presented at Geological Society of America (GSA) South-Central/North-Central/Rocky Mountain Section Meeting, Manhattan, Kans., March 2019.

## Activities of a Professional Nature

### Activities of a Professional Nature

Session convenor, chair, GSA Annual Meeting, Seattle, Wash., Session T217. Challenges in Tectonics: Synergies between Meeting Societal Needs and Advancing Interdisciplinary Research in Tectonics and Structural Geology (October 22, 2017)

## Publications

### Peer Reviewed Journal Articles

Doungkaew, N., and Eichhubl, P., 2024, Fracture ellipticity as a measure of chemical reaction-controlled fracture growth: *Journal of Structural Geology* (Special Issue: Rheology and fluid rock interactions in salt, fault systems, and veins: insights from microstructural observations and analogue simulations—a tribute to Janos L. Urai), v. 183, no. 105127, 17 p., <http://doi.org/10.1016/j.jsg.2024.105127>.

Haddad, M., and Eichhubl, P., 2024, Normal fault reactivation induced by hydraulic fracturing: poroelastic effects: *Interpretation*, Special section: Induced seismicity, v. 12, no. 3, p. SD17-SD36, <http://doi.org/10.1190/INT-2023-0031.1>.

Landry, C. J., Prodanovic, M., Karpyn, Z., and Eichhubl, P., 2024, Estimation of fracture permeability from aperture distributions for rough and partially cemented fractures: *Transport in Porous Media*, v. 151, no. 4, p. 689-717, <http://doi.org/10.1007/s11242-024-02059-y>.

Doungkaew, N., and Eichhubl, P., 2023, High-temperature fracture growth by constrained sintering of jadeite and quartz aggregates: *Journal of Geophysical Research: Solid Earth*, v. 128, no. 4, article no. e2022JB025565, 22 p., <http://doi.org/10.1029/2022JB025565>.

Haddad, M., and Eichhubl, P., 2023, Fault reactivation in response to saltwater disposal and hydrocarbon production for the Venus, TX, Mw 4.0 earthquake sequence: *Rock Mechanics and Rock Engineering*, v. 56, no. 3, p. 2103-2135, <http://doi.org/10.1007/s00603-022-03083-4>.

Hooker, J. N., Katz, R. F., Laubach, S. E., Cartwright, J., Eichhubl, P., Ukar, E., Bloomfield, D., and Engelder, T., 2023, Fracture-pattern growth in the deep, chemically reactive subsurface: *Journal of Structural Geology*, v. 173, no. 104915, 21 p., <http://doi.org/10.1016/j.jsg.2023.104915>.

Wright, E., Landry, C. J., and Eichhubl, P., 2023, Occurrence and origin of nanoscale grain boundary channels under diagenetic conditions: *Journal of Geophysical Research: Solid Earth*, v. 128, no. 7, article no. e2023JB026961, 20 p., <http://doi.org/10.1029/2023JB026961>.

Delshad, M., Umurzakov, Y., Sepehrnoori, K., Eichhubl, P., and Batista Fernandes, B. R., 2022, Hydrogen storage assessment in depleted oil reservoir and saline aquifer: *Energies*, v. 15, no. 8132, 24 p., <http://doi.org/10.3390/en15218132>.

Gale, J. F. W., Fall, A., Yurchenko, I. A., Ali, W. A., Laubach, S. E., Eichhubl, P., and Bodnar, R. J., 2022, Opening-mode fracturing and cementation during hydrocarbon generation in shale: an example from the Barnett Shale, Delaware Basin, West Texas: *AAPG Bulletin*, v. 106, no. 10, p. 2103-2141, <http://doi.org/10.1306/01062219274>.

Callahan, O. A., Eichhubl, P., and Davatzes, N. C., 2020, Mineral precipitation as a mechanism of fault core growth: *Journal of Structural Geology*, v. 140, no. 104156, 16 p., <http://doi.org/10.1016/j.jsg.2020.104156>.

Callahan, O. A., Eichhubl, P., Olson, J. E., and Davatzes, N. C., 2020, Experimental investigation of chemically aided fracture growth in silicified fault rocks: *Geothermics*, v. 83, no. 101724, 14 p., <http://doi.org/10.1016/j.geothermics.2019.101724>.

Chen, X., Eichhubl, P., Olson, J. E., and Dewers, T. A., 2020, Salinity, pH, and temperature controls on fracture mechanical properties of three shales and their implications for fracture growth in chemically reactive fluid environments: *Geomechanics for Energy and the Environment*, v. 21, no. 100140, 12 p., <http://doi.org/10.1016/j.gete.2019.100140>.

Denny, A. C., Fall, A., Orland, I. J., Valley, J. W., Eichhubl, P., and Laubach, S. E., 2020, A history of pore water oxygen isotope evolution in the Cretaceous Travis Peak Formation in East Texas: *Geological Society of America Bulletin*, v. 132, no. 7/8, p. 1626-1638, <http://doi.org/10.1130/B35291.1>.

- Haddad, M., and Eichhubl, P., 2020, Poroelastic models for fault reactivation in response to concurrent injection and production in stacked reservoirs: *Geomechanics for Energy and the Environment*, v. 24, no. 100181, 17 p., <http://doi.org/10.1016/j.gete.2020.100181>.
- Nicot, J.-P., Darvari, R., Eichhubl, P., Scanlon, B. R., Elliott, B. A., Bryndzia, T. L., Gale, J. F. W., and Fall, A., 2020, Origin of low salinity, high volume produced waters in the Wolfcamp Shale (Permian), Delaware Basin, USA: *Applied Geochemistry*, v. 122, no. 104771, 18 p., <http://doi.org/10.1016/j.apgeochem.2020.104771>.
- Callahan, O., Eichhubl, P., Olson, J. E., and Davatzes, N. C., 2019, Fracture mechanical properties of damaged and hydrothermally altered rocks, Dixie Valley-Stillwater Fault Zone, Nevada, USA: *Journal of Geophysical Research: Solid Earth*, v. 124, p. 4069-4090, <http://doi.org/10.1029/2018JB016708>.
- Chen, X., Eichhubl, P., Olson, J. E., and Dewers, T. A., 2019, Effect of water on fracture mechanical properties of shales: *Journal of Geophysical Research: Solid Earth*, v. 124, p. 2428-2444, <http://doi.org/10.1029/2018JB016479>.
- Fan, Z., Eichhubl, P., and Newell, P., 2019, Basement fault reactivation by fluid injection into sedimentary reservoirs: poroelastic effects: *Journal of Geophysical Research-Solid Earth*, v. 124, p. 7354-7369, <http://doi.org/10.1029/2018JB017062>.
- Weisenberger, T. B., Eichhubl, P., Laubach, S. E., and Fall, A., 2019, Degradation of fracture porosity in sandstone by carbonate cement, Piceance Basin, Colorado, USA: *Petroleum Geoscience*, v. 25, no. 4, p. 354-370, <http://doi.org/10.1144/petgeo2018-162>.
- Aman, M., Espinoza, D. N., Ilgen, A. G., Major, J. R., Eichhubl, P., and Dewers, T. A., 2018, CO<sub>2</sub>-induced chemo-mechanical alteration in reservoir rocks assessed via batch reaction experiments and scratch testing: *Greenhouse Gases: Science and Technology*, v. 8, p. 133-149, <http://doi.org/10.1002/ghg.1726>.
- Dewers, T., Eichhubl, P., Ganis, B., Gomez, S., Heath, J., Jammoul, M., Kobos, P., Liu, R., Major, J., Matteo, E., Newell, P., Rinehart, A., Sobolik, S., Stormont, J., Reda Taha, M., Wheeler, M., and White, D., 2018, Heterogeneity, pore pressure, and injectate chemistry: control measures for geologic carbon storage: *International Journal of Greenhouse Gas Control*, v. 68, p. 203-215, <http://doi.org/10.1016/j.ijggc.2017.11.014>.
- Espinoza, D. N., Jung, H., Major, J. R., Sun, Z., Ramos, M. J., Eichhubl, P., Balhoff, M. T., Choens, R. C., and Dewers, T. A., 2018, CO<sub>2</sub> charged brines changed rock strength and stiffness at Crystal Geyser, Utah: implications for leaking subsurface CO<sub>2</sub> storage reservoirs: *International Journal of Greenhouse Gas Control*, v. 73, no. 6, p. 16-28, <http://doi.org/10.1016/j.ijggc.2018.03.017>.
- Major, J. R., Eichhubl, P., Dewers, T. A., and Olson, J. E., 2018, Effect of CO<sub>2</sub>-brine-rock interaction on fracture mechanical properties of CO<sub>2</sub> reservoirs and seals: *Earth and Planetary Science Letters*, v. 499, p. 37-47, <http://doi.org/10.1016/j.epsl.2018.07.013>.
- Chen, X., Eichhubl, P., and Olson, J. E., 2017, Effect of water on critical and subcritical fracture properties of Woodford shale: *Journal of Geophysical Research: Solid Earth*, v. 122, no. 4, p. 2736-2750, <http://doi.org/10.1002/2016JB013708>.
- Landry, C. J., Prodanovic, M., and Eichhubl, P., 2017, Comment on Xu et al., 2017: *AIChE Journal*, v. 63, no. 10, p. 4717-4718, <http://doi.org/10.1002/aic.15823>.
- Newell, P., Martinez, M. J., and Eichhubl, P., 2017, Impact of layer thickness and well orientation on caprock integrity for geologic carbon storage: *Journal of Petroleum Science and Engineering*, v. 155, p. 100-108, <http://doi.org/10.1016/j.petrol.2016.07.032>.
- Tokan-Lawal, A., Prodanovic, M., Landry, C. J., and Eichhubl, P., 2017, Influence of numerical cementation on multiphase displacement in rough fractures: *Transport in Porous Media*, v. 116, no. 1, p. 275-293, <http://doi.org/10.1007/s11242-016-0773-0>.

- Yoon, H., Major, J., Dewers, T., and Eichhubl, P., 2017, Application of a pore-scale reactive transport model to a natural analog for reaction-induced pore alterations: *Journal of Petroleum Science and Engineering*, v. 155, p. 11-20, <http://doi.org/10.1016/j.petrol.2017.01.002>.
- Fan, Z., Eichhubl, P., and Gale, J. F. W., 2016, Geomechanical analysis of fluid injection and seismic fault slip for the Mw4.8 Timpson, Texas, earthquake sequence: *Journal of Geophysical Research: Solid Earth*, v. 121, p. 2798-2812, <http://doi.org/10.1002/2016JB012821>.
- Landry, C. J., Eichhubl, P., Prodanovic, M., and Wilkins, S., 2016, Nanoscale grain boundary channels in fracture cement enhance flow in mudrocks: *Journal of Geophysical Research: Solid Earth*, v. 121, p. 3366-3376, <http://doi.org/10.1002/2016JB012810>.
- Landry, C. J., Prodanovic, M., and Eichhubl, P., 2016, Direct simulation of supercritical gas flow in complex nanoporous media and prediction of apparent permeability: *International Journal of Coal Geology*, v. 159, p. 120-134, <http://doi.org/10.1016/j.coal.2016.03.015>.
- Rinehart, A. J., Dewers, T. A., Broome, S. T., and Eichhubl, P., 2016, Effects of CO<sub>2</sub> on mechanical variability and constitutive behavior of the Lower Tuscaloosa Formation, Cranfield Injection Site, USA: *International Journal of Greenhouse Gas Control*, v. 53, p. 305-318, <http://doi.org/10.1016/j.ijggc.2016.08.013>.
- Ukar, E., Ozkul, C., and Eichhubl, P., 2016, Fracture abundance and strain in folded Cardium Formation, Red Deer River anticline, Alberta Foothills, Canada: *Marine and Petroleum Geology*, v. 76, p. 210-230, <http://doi.org/10.1016/j.marpetgeo.2016.05.016>.
- Alzayer, Y., Eichhubl, P., and Laubach, S. E., 2015, Non-linear growth kinematics of opening-mode fractures: *Journal of Structural Geology*, v. 74, p. 31-44, <http://doi.org/10.1016/j.jsg.2015.02.003>.
- Fall, A., Eichhubl, P., Bodnar, R. J., Laubach, S. E., and Davis, J. S., 2015, Natural hydraulic fracturing of tight-gas sandstone reservoirs, Piceance Basin, Colorado: *Geological Society of America Bulletin*, v. 127, no. 1-2, p. 61-75, <http://doi.org/10.1130/B31021.1>.
- Hooker, J.N., Larson, T., Eakin, A., Laubach, S. E., Eichhubl, P., Fall, A., and Marrett, R., 2015, Fracturing and fluid flow in a sub-décollement sandstone; or, a leak in the basement: *Journal of the Geological Society*, v. 172, p. 428-442, <http://doi.org/10.1144/jgs2014-128>, <http://jgs.lyellcollection.org/content/172/4/428.full.pdf+html>.
- Tokan-Lawal, A., Prodanovic, M., and Eichhubl, P., 2015, Investigating flow properties of partially cemented fractures in Travis Peak Formation using image-based pore scale modeling: *Journal of Geophysical Research: Solid Earth*, v. 120, no. 8, p. 5453-5466, <http://doi.org/10.1002/2015JB012045>.
- Altman, S. J., Aminzadeh, B., Balhoff, M. T., Bennett, P. C., Bryant, S. L., Cardenas, M. B., Chaudhary, K., Cygan, R. T., Deng, W., Dewers, T., DiCarlo, D. A., Eichhubl, P., Hesse, M. A., Huh, C., Matteo, E. N., Mehmani, Y., Tenney, C. M., and Yoon, H., 2014, Chemical and hydrodynamic mechanisms for long-term geological carbon storage: *The Journal of Physical Chemistry C*, v. 118, no. 28, p. 15103-15113, <http://doi.org/10.1021/jp5006764>.
- Gale, J. F. W., Laubach, S. E., Olson, J. E., Eichhubl, P., and Fall, A., 2014, Natural fractures in shale: a review and new observations: *AAPG Bulletin*, v. 98, no. 11, p. 2165-2216, <http://doi.org/10.1306/08121413151>.
- Laubach, S. E., Eichhubl, P., Hargrove, P., Ellis, M. A., and Hooker, J. N., 2014, Fault core and damage zone fracture attributes vary along strike owing to interaction of fracture growth, quartz accumulation, and differing sandstone composition: *Journal of Structural Geology*, v. 68, Part A, p. 207-226, <http://doi.org/10.1016/j.jsg.2014.08.007>.
- Ellis, Magdalena, Laubach, S. E., Eichhubl, P., Olson, J., and Hargrove, Peter, 2012, Fracture development and diagenesis of Torridon Group Applecross Formation, near An Teallach, NW Scotland: millennia of brittle deformation resilience: *Journal of the Geological Society, London*,

v. 169, p. 297-310, <http://doi.org/10.1144/0016-76492011-086>, 2012 Top 10 'Most Read' (downloads) for journal, according to publisher.

Fall, A., Eichhubl, P., Cumella, S. P., Bodnar, R. J., Laubach, S. E., and Becker, S. P., 2012, Testing the basin-centered gas accumulation model using fluid inclusion observations: Southern Piceance Basin, Colorado: *AAPG Bulletin*, v. 96, no. 12, p. 2297-2318.

Mehmani, Y., Sun, T., Balhoff, M., Eichhubl, P., and Bryant, S., 2012, Multiblock pore-scale modeling and upscaling of reactive transport: application to carbon sequestration: *Transport in Porous Media*, v. 95, p. 305-326.

Hooker, J. N., Laubach, S. E., Gomez, L. A., Marrett, R. A., Eichhubl, P., Diaz Tushman, K., and Pinzon, E. A., 2011, Fracture size, frequency, and strain in the Cambrian Eriboll Formation sandstones, NW Scotland: *Scottish Journal of Geology*, v. 47, p. 45-56.

Sun, W., Andrade, J. E., Rudnicki, J. W., and Eichhubl, P., 2011, Connecting microstructural attributes and permeability from 3D tomographic images of in situ shear-enhanced compaction bands using multiscale computations: *Geophysical Research Letters*, v. 38, L10302, doi:10.1029/2011GL047683.

Becker, S. P., Eichhubl, P., Laubach, S. E., Reed, R. M., Lander, R. H., and Bodnar, R. J., 2010, A 48 m.y. history of fracture opening, temperature, and fluid pressure: Cretaceous Travis Peak Formation, East Texas Basin: *Geological Society of America Bulletin*, v. 122, no. 7/8, p. 1081-1093.

Eichhubl, P., Hooker, J. N., and Laubach, S. E., 2010, Pure and shear-enhanced compaction bands in Aztec Sandstone: *Journal of Structural Geology*, v. 32, p. 1873-1886.

Laubach, S. E., Eichhubl, P., Hilgers, C., and Lander, R. H., 2010, Structural diagenesis: *Journal of Structural Geology*, v. 32, no. 4, p. 1866-1872.

Eichhubl, P., Davatzes, N. C., and Becker, S. P., 2009, Structural and diagenetic control of fluid migration and cementation along the Moab fault, Utah: *AAPG Bulletin*, v. 93, no. 5, p. 653-681.

Appold, M. S., Garven, G., Boles, J. R., and Eichhubl, P., 2007, Numerical modeling of the origin of calcite mineralization in the Refugio-Carneros fault, Santa Barbara Basin, California: *Geofluids*, v. 7, p. 79-95.

Naehr, T. H., Eichhubl, P., Orphan, V. J., Hovland, M., Paull, C. K., Ussler, W. III, Lorenson, T. D., and Greene, H. G., 2007, Authigenic carbonate formation at hydrocarbon seeps in continental margin sediments: a comparative study: *Deep-Sea Research Part II: Topical Studies in Oceanography*, v. 54, no. 11-13, p. 1268-1291.

Aydin, A., Borja, R. I., and Eichhubl, Peter, 2006, Geological and mathematical framework for failure modes in granular rock. *Journal of Structural Geology*, vol. 28, no. 1, p. 83-98. [most cited paper in *Journal of Structural Geology*, 1/2005-6/2012]

Greene, H. G., Murai, L. Y., Watts, P., Maher, N. A., Fisher, M. A., Paull, C. E., and Eichhubl, P., 2006, Submarine landslides in the Santa Barbara Channel as potential tsunami sources, in *Tsunami hazard from slope instability: Natural Hazards and Earth System Sciences*, v. 6, p. 63-88.

Davatzes, N. C., Eichhubl, Peter, and Aydin, A., 2005, Structural evolution of fault zones in sandstone by multiple deformation mechanisms: Moab fault, SE Utah: *Geological Society of America Bulletin*, v. 117, no. 1/2, p. 135-148.

Eichhubl, Peter, D'Onfro, P., Aydin, A., Waters, J., and McCarty, D. K., 2005, Structure, petrophysics, and diagenesis of shale entrained along a normal fault, Black Diamond Mines, California--implications for fault seal: *AAPG Bulletin*, v. 89, no. 9, p. 1113-1137.

Boles, J. R., Eichhubl, Peter, Garven, G., and Chen, J., 2004, Evolution of a hydrocarbon migration pathway along basin-bounding faults: evidence from fault cement: *AAPG Bulletin*, v.

88, no. 7, p. 947-970.

Eichhubl, Peter, 2004, Growth of ductile opening-mode fractures in geomaterials, in Cosgrove, J. W., and Engelder, T., eds., The initiation, propagation, and arrest of joints and other fractures: interpretations based on field observations: Geological Society of London Special Publication, v. 231, p. 11-24.

Eichhubl, Peter, Taylor, W. L., Pollard, D. D., and Aydin, A., 2004, Paleo-fluid flow and deformation in the Aztec Sandstone at the Valley of Fire, Nevada--evidence for the coupling of hydrogeologic, diagenetic, and tectonic processes: Geological Society of America Bulletin, v. 116, no. 9, p. 1120-1136.

Davatzes, N. C., Aydin, A., and Eichhubl, Peter, 2003, Overprinting faulting mechanisms during the development of multiple fault sets in sandstone, Chimney Rock fault array, Utah, USA: Tectonophysics, v. 363, no. 1-2, p. 1-18.

Eichhubl, Peter, and Aydin, A., 2003, Ductile opening-mode fracture by pore growth and coalescence during combustion alteration of siliceous mudstone: Journal of Structural Geology, v. 25, no. 1, p. 121-134.

Du Bernard, X., Eichhubl, Peter, and Aydin, A., 2002, Dilation bands: a new form of localized failure in granular media: Geophysical Research Letters, v. 29, no. 24, 10.1029/2002GL015966.

Eichhubl, Peter, Greene, H. G., and Maher, N., 2002, Physiography of an active transpressive margin basin: high-resolution bathymetry of the Santa Barbara basin, Southern California continental borderland: Marine Geology, v. 184, no. 1/2, p. 95-120.

Lore, J., Eichhubl, Peter, and Aydin, A., 2002, Alteration and fracturing of siliceous mudstone during in situ combustion, Orcutt field, California: Journal of Petroleum Science and Engineering, v. 36, no. 3-4, p. 169-182.

Eichhubl, Peter, Aydin, A., and Lore, J., 2001, Opening-mode fracture in siliceous mudstone at high homologous temperature--effect of surface forces: Geophysical Research Letters, v. 28, no. 7, p. 1299-1302.

Eichhubl, Peter, and Boles, J. R., 2000, Focused fluid flow along faults in the Monterey Formation, coastal California: Geological Society of America Bulletin, v. 112, no. 11, p. 1667-1679.

Eichhubl, Peter, and Boles, J. R., 2000, Rates of fluid flow in fault systems--evidence for episodic fluid flow in the Miocene Monterey Formation, coastal California: American Journal of Science, v. 300, no. 7, p. 571-600.

Eichhubl, Peter, Greene, H. G., Naehr, T., and Maher, N., 2000, Structural control of fluid flow: offshore fluid seepage in the Santa Barbara basin, California: Journal of Geochemical Exploration, v. 69-70, p. 545-549.

Eichhubl, Peter, and Behl, R. J., 1998, Diagenesis, deformation, and fluid flow in the Miocene Monterey Formation of coastal California, in Eichhubl, P., ed., Diagenesis, deformation, and fluid flow in the Miocene Monterey Formation of coastal California: SEPM Pacific Section Special Publication, v. 83, p. 5-13.

### Peer Reviewed Book Chapters

Callahan, O. A., Eichhubl, P., and Kyle, J. R., 2023, Factors influencing rock strength and fluid flow at the basement-sediment interface from field and core-based observations, Llano Uplift, Texas, in Callahan, O. A., and Eichhubl, P., eds., The geologic basement of Texas: a volume in honor of Peter T. Flawn: The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations, v. 286, 28 p., <http://doi.org/10.23867/RI0286C8>.

### Non Peer Reviewed Authored Books

Eichhubl, Peter, ed., 1998, Diagenesis, deformation, and fluid flow in the Miocene Monterey



## Non Peer Reviewed Journal Articles

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