STEPHEN JOSEPH MARTEL

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EXPERTISE

Structural geology and engineering geology
Preparation of detailed, large-scale geologic maps
Field geology
Application of fracture mechanics and elasticity theory to faults, joints, and dikes
Boundary element modeling
Mechanical effects of topography on near-surface stresses

EDUCATION

PhD, Geomechanics, Stanford University, 6/87
PhD Thesis: Development of strike-slip fault zones in granitic rock, Mount Abbot Quadrangle, Sierra Nevada, California
PhD Faculty Advisor: Dr. David D. Pollard

MS, Engineering Geology, Stanford University, 6/84
MS Thesis: Late Quaternary activity on the Fish Springs fault, Owens Valley fault zone, California
MS Faculty Advisor: Dr. Richard H. Jahns

BS, Geology, University of California at Davis, 6/80, with honors, outstanding senior geology major

CLASSES REGULARLY TAUGHT

Structural Geology: GG303 (Fall term)
Engineering Geology: GG454 (Spring term)

EMPLOYMENT EXPERIENCE

7/04-	UNIVERSITY OF HAWAII, PROFESSOR
9/09-11/09	UNIVERSITY OF COLORADO, CIRES FELLOW
2/09-3/09	UNIVERSITY OF VIENNA, GUEST PROFESSOR
5/05-2/09	UNIVERSITY OF HAWAII, HEAD, DIVISON OF TECTONICS AND GEOPHYSICS
7/02-6/04	UNIVERSITY OF HAWAII, ASSOCIATE CHAIR, DEPARTMENT OF GEOLOGY AND GEOPHYSICS, UNIVERSITY OF HAWAII
7/99-6/04	UNIVERSITY OF HAWAII, ASSOCIATE PROFESSOR
7/92- 6/99	UNIVERSITY OF HAWAII, ASSISTANT PROFESSOR Conducting research and teaching in engineering geology, structural geology, and mechanics of rock fracture. Main research in areas of fault growth, hydrogeology of faults, joint formation, mechanics of landslide initiation, stresses in the Earth, and boundary element modeling.
7/88-6/92	LAWRENCE BERKELEY LABORATORY, STAFF SCIENTIST Conducted field work and mechanical analyses on the geometry and genesis of fracture systems as part of LBL's interdisciplinary fracture hydrology program. Involved in major projects at rock laboratories at Grimsel, Switzerland; Stripa, Sweden; and Yucca Mountain, Nevada.
1/91-3/91	CALIFORNIA STATE UNIVERSITY AT HAYWARD, LECTURER IN ENGINEERING GEOLOGY
8/87-6/88	BUREAU OF ECONOMIC GEOLOGY, UNIVERSITY OF TEXAS AT AUSTIN, RESEARCH ASSOCIATE Conducted research on neotectonics in the Texas Panhandle and in West Texas as part of two nuclear waste storage programs.
1/85-6/87	STANFORD UNIVERSITY, RESEARCH ASSISTANT Conducted original research on how strike-slip fault zones develop in granitic rock by integrating detailed field mapping, computer-assisted mechanical analysis, and microstructural analysis.
9/80-12/84	STANFORD UNIVERSITY, TEACHING ASSISTANT Assisted in teaching and grading graduate-level classes in physical processes in geology, engineering geology, engineering geologic mapping, and undergraduate classes in environmental geology and land-use planning.
6/83-8/83	WILLIAM COTTON AND ASSOCIATES, GEOLOGIST
6/82-9/82	Prepared detailed engineering geologic maps of landslides and flood deposits; compiled and evaluated data for selection of trench sites in studies of the San Andreas, Hayward, and Calaveras faults; logged trenches during studies of Hayward, Calaveras, and San Gabriel faults.
1/82-3/82	STANFORD UNIVERSITY, RESEARCH ASSISTANT
6/81-9/81	Conducted original research on late Quaternary faulting in Owens Valley. Field work entailed preparation of detailed geologic maps. Lab work involved preparing samples for dating young basalts by an $^{39}Ar/^{40}Ar$ technique.
6/80-8/80	UNIVERSITY OF CALIFORNIA AT DAVIS, TEACHING ASSISTANT Assisted in teaching and operating the UC Davis summer field camp.
9/78-6/80	UNIVERSITY OF CALIFORNIA AT DAVIS, LABORATORY ASSISTANT Operated magnetometer and developed computer programs for the analysis and reduction of paleomagnetic data.
6/78-6/80	U. S. GEOLOGICAL SURVEY, GEOLOGIC FIELD ASSISTANT (GS-4) Assisted in stratigraphic studies and geologic mapping in Cook Inlet, Alaska; installed geodetic marker system along the Garlock fault, California; updated inventory on a national strong-motion accelerograph system.

PROFESSIONAL SOCIETIES

Geological Society of America (member of Structural Geology and Engineering Geology Divisions, #1563585)
American Geophysical Union (member # 03319739)

PROFESSIONAL RECOGNITION & ACADEMIC HONORS

2018 Exceptional Reviewer citation – Geology
2016 Exceptional Reviewer citation – Geological Society of America Bulletin
2012 Research on sheeting joints highlighted in Physics Today (February 27, 2012)
2011 Research on sheeting joints spotlighted in EOS (November 22, 2011, v. 92, no. 47)
2011 Exceptional Reviewer citation – Geological Society of America Bulletin
2011 Co-author of "Most Cited Article 2005 to 2010", Journal of Structural Geology, with Bernhard Grasemann (first author) and Cees Passchier (third author)
2009 Visiting Fellow, Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado; Boulder, Colorado (9/1/09-11/30/09)
2009 Guest Professor, University of Vienna; Vienna, Austria (3/1/09-4/30/09)
2007 Editors' Citation for Excellence in Refereeing – Geophysical Research Letters
2006 Editors' Citation for Excellence in Refereeing - JGR- Earth Surface
2004 Editors' Citation for Excellence in Refereeing - JGR- Earth Surface
2003 Elected as Fellow, Geological Society of America
2001 Editors' Citation for Excellence in Refereeing - JGR-Solid Earth
1999 Editors' Citation for Excellence in Refereeing - Water Resources Research
1998 Editors' Citation for Excellence in Refereeing - JGR-Solid Earth
1997 Presidential Citation for Meritorious Teaching, University of Hawaii
1992 Editors' Citation for Excellence in Refereeing - JGR-Solid Earth

RECENT SERVICE

2018 Mentor, Research Experience for Undergraduates (REU) program, Department of Geology and Geophysics, University of Hawaii
2017 Mentor, Research Experience for Undergraduates (REU) program, Department of Geology and Geophysics, University of Hawaii
2016-2017 Co-chair and treasurer, 2017 Geological Society of America Cordilleran Section Meeting, Honolulu, HI
2016 Field trip co-leader, Association of Engineering Geologists National Meeting, Kailua-Kona, HI
2015-present Member, Hawaii Earthquake and Tsunami Advisory Committee
11/1/14-11/2/14 Digital database workshop for structural geology, Madison, WI.

COMMITTEES TO RENDER SCIENTIFIC JUDGEMENT

Steering Committee Chair, National Center for Airborne Laser Mapping (1/2010-12/2010)
Steering Committee member, National Center for Airborne Laser Mapping (10/2008-10/2011)
Editorial Board, Journal of Engineering Geology (11/2007-11/2010)
U.S. Department of Energy panel on scaling issues pertaining to fractures, fluid flow, and geochemistry,1997
Consultant to Mobil Oil Corporation on fractured hydrocarbon reservoirs in crystalline rocks
Advisory panel to Atomic Energy of Canada Limited to examine potential for significant additional fracturing of the Lac du Bonnet Batholith, 1994-1995. Charles Fairhurst chairman.
Advisor to National Academy of Sciences committee on state-of-the-art of fracture hydrology
Technical reviewer for Journal of Engineering Geology, Journal of Geophysical Research, Journal of Structural Geology, Journal of Geology, International Society for Rock Mechanics, Geology, Tectonics, American Association of Petroleum Geologists, Water Resources Research, Geophysical Research Letters, Bulletin of Volcanology, Marine Geology, Eos, Geothermal Resources Council

INVITATIONAL CONFERENCE PARTICIPATION & LECTURES

American Geophysical Union, San Francisco, CA, 12/13/10-12/17/10.
Anderson Conference, Stress controls on faulting, fracturing, and igneous intrusion in the Earth's crust Glasgow, UK, 9/6/10-9/8/10.
Geological Society of America Penrose Conference, Origin and Uplift of the Sierra Nevada, California, Bridgeport, CA, 8/16/10-8/20/10.
New Tools in Process-Based Analysis of Lidar Topographic Data Workshop, Boulder, CO, 6/2/10-6/3/10.
National Center for Airborne Laser Mapping Steering Committee Workshop, Boulder, CO, 5/30/10-6/1/10.
National Center for Airborne Laser Mapping Steering Committee Workshop, San Francisco, CA, 12/16//09.
American Geophysical Union, Session co-chair, 12/14/09-12/15/09.
U.S. Geological Survey, Denver, Colorado, 11/24/09.
University of Colorado, Boulder, Colorado, 11/18/09.
DUSEL (Deep Underground Science and Engineering Laboratory) Workshop, National Science Foundation, Lead, South Dakota, 9/30/09-10/2/09
University of Colorado, Boulder, Colorado, 9/09-11/09 (series of lectures).
National Center for Airborne Laser Mapping Steering Committee Workshop, University of Florida, Key Largo, Florida, 6/1/09-6/2/09.
University of Vienna, Vienna, Austria, 4/29/09
European Geophysical Union, Vienna, Austria, 4/21/09.
University of Vienna, Vienna, Austria, 3/30/09-4/3/09 (short course).
DUSEL (Deep Underground Science and Engineering Laboratory) Workshop, National Science Foundation, Lead, South Dakota, 4/20/08-4/23/08.
Yosemite Forum Lecture, Yosemite Valley, California, 7/8/08.
LIDAR workshop and invited lecture, National Science Foundation, Boulder, Colorado, 6/16/08-6/18/08.
DUSEL (Deep Underground Science and Engineering Laboratory) Workshop, National Science Foundation, Lead, South Dakota, 4/20/08-4/23/08
Society of Economic Geologists Workshop on the Green Canyon Earthquake, New Orleans, Louisiana, 10/5/06.
Earthscope Northern California LIDAR Workshop, National Science Foundation, Tomales Bay, California, 3/16/06 – 3/19/06.
DUSEL (Deep Underground Science and Engineering Laboratory) Workshop, National Science Foundation, Lead, South Dakota, 2/9/06 – 2/11/06.
Southern California Earthquake Consortium annual symposium, Palm Springs, California, 9/11/05-9/16/05.
Chapman Conference on the Physics of Earthquakes, American Geophysical Union, Portland, Maine, 6/13/05 – 6/17/05.
ISES II Forum, National Science Foundation, San Francisco, California, 12/12/04.
Workshop on National Center for Airborne Laser Mapping, Gainseville, Florida, 4/03.
Special session co-chair, American Geophysical Union Fall Meeting, 12/02.
International Workshop on Neutrinos and Subterranean Science, Washington D.C., 9/02.
U.S. Department of Energy Office of Basic Energy Sciences workshop on Multiscale Reservoir Investigations and Applications to Terrestrial CO2 Sequestration, Berkeley, California, 12/01.
Earth Systems Processes meeting, Edinburgh, Scotland, 6/01.
U.S. National Science Foundation workshop on landslides and tsunamis, 3/00.
U.S. Department of Energy Office of Basic Energy Sciences workshop on Micromechanics, 8/98.
U.S. Department of Energy Office of Basic Energy Sciences workshop on Scaling of Geologic Systems, 9/97.
Geological Society of America Penrose Conference on fractures and fluid flow, 9/97.
Co-chair for session on origin and growth of fractures in rock, 1997 U.S. Rock Mechanics Symposium, Columbia University, 6/97.
Chairman for fracture network workshop at the 1994 North American Rock Mechanics Symposium, 6/94.
North American Rock Mechanics Symposium, Austin Texas, 6/94.
Short course lecturer, Technical Research Center of Finland: A modern geologic approach to characterizing fracture systems, 4/92.
LBL/ORNL workshop on fracture characterization, 11/88.
USGS conference on fault zone segmentation, 3/88.
Geological Society of America Penrose Conference on tectonic geomorphology, 4/83.

FUNDED RESEARCH PROPOSALS

Exfoliation Revealed; Yosemite Conservancy; Agreement no. CA#H80800090008; PI: S.J. Martel; $96,000 to Martel; 6/2/11 - 2/28/14.

Collaborative Research: Development of a Fracture Processes Facility at Dusel Homestake; National Science Foundation; Award #CMMI09-19584; PI: S.J. Martel; $37,073 to Martel; 8/15/09 – 7/31/12.

Three-dimensional Analysis of Graben-Pit Catenae for Mars and Earth; NASA (subcontract to the Jet Propulsion Laboratory); Award #1290138 (supplement); PI: S.J. Martel; $19,072 to Martel; 5/7/09 – 6/30/09 (no cost extension to 12/31/10).

Three-dimensional Analysis of Graben-Pit Catenae for Mars and Earth; NASA (subcontract to the Jet Propulsion Laboratory); PIs: P.R. Lundgren, S.J. Martel, and E.R. Ivins: $156,600 to Martel; 10/8/06 – 6/30/09.

Mechanics of sheeting joints and near-surface stresses; National Science Foundation; Grant no. EAR05-38334; PI: S.J. Martel; $304,228 to Martel; 1/1/06 - 12/31/08 (no-cost extension to 12/31/10).

Growth of faults in three dimensions and scaling of fault structure; U.S. Department of Energy; Grant. no. DE-FG03-95ER14525 Amdt #A004; PIs (by alphabetical order): J. Evans, K. Hestir, J.C.S. Long, and S.J. Martel; $393,411 to Martel; 8/1/98 - 7/31/04.

Numerical and laboratory experimental investigations of magma transport in oceanic hotspot lithosphere; National Science Foundation; Grant no. OCE97-30673; PIs: G. Ito, D. Bercovici, and S.J. Martel; $6,207 to Martel; 2/1/98 - 1/31/00.

Three-dimensional boundary element model for stresses near the surface of the earth and the initiation of submarine landslides; Office of Naval Research; Grant no. N00014-96-1-0353, Mod No. P00002; $65,841 to Martel; 1/1/98 - 12/31/98.

A quantitative fracture model for the initiation of submarine landslides; Office of Naval Research; Grant no. N00014-96-1-0353; $124,063 to Martel; 1/1/96 - 12/31/97.

Three-dimensional hydrogeology of fault zones; U.S. Department of Energy; Grant. no. DE-FG03-95ER14525; PIs (by alphabetical order): J. Evans, J. Jacobsen, K. Hestir, J.C.S. Long, and S.J. Martel; $243,408 to Martel; 4/1/96 - 3/31/98.

^{39}Ar-^{40}Ar dating of regional fracture systems in the Sierra Nevada, California and of the Koolau rift zone, Oahu; University of Hawaii Research Council; PI: S.J. Martel; $12,056 to Martel; 1/3/95-12/31/96.

Physically based stochastic models of fractures and fluid flow in rock; National Science Foundation; Grant no. DMS-9220941; PIs: K.F. Hestir, J.V. Koebbe, J.P. Evans, and S.J. Martel; $21,376 to Martel; 8/15/92-7/31/94.

Mechanics of segmentation along normal faults; Texas Advanced Research Program; PI J.A. Raney (95% written by S.J. Martel); $79,644 total; 1988-1990.

Faulting and brittle fracturing in granitic rock; National Science Foundation EAR-8417021; PI D.D. Pollard (33% written by S.J. Martel); $102,261 total; 1985-1987.

PUBLICATIONS

BOOKS

Pollard, D.D., and Martel, S.J., 2019, Quantitative Structural Geology: An Introduction, Cambridge University Press (submitted).

CHAPTERS IN BOOKS

Martel, S.J., and Shacat, C., 2006, Influences of fault interaction of fault slip, in: Radiated energy and the physics of earthquake faulting, edited by A. McGarr, R. Abercrombie, H. Kanamori, and G. Di Toro, American Geophysical Union Monograph 170, p. 207-216.

Hestir, K., Martel, S.J, Yang, J., Evans, J.P., Long, J.C.S., D'Onfro, P., and Rizer, W., 2001, Use of conditional simulation, mechanical theory, and field observations to characterize the structure of faults and fracture networks, in: Flow and transport through unsaturated rock, edited by T.J. Nocholson and D.E. Evans, American Geophysical Union Monograph 42, p. 61-75.

National Academy of Sciences, 1996, Rock fractures and fluid flow: contemporary understanding and applications: National Research Council (chapter 2 co-author with Atilla Aydin, p. 29-101).

ARTICLES IN INTERNATIONAL OR NATIONAL REFEREED JOURNALS

Moon, S., Perron, J.T., Martel, S., Holbrook, W.S., and St. Clair, J, 2017, A model of three-dimensional topographic stresses with implications for bedrock fractures, surface processes and landscape evolution: Journal of Geophysical Research, doi: 10.1002/2016JF004155.

Martel, S.J., 2017. Progress in understanding sheeting joints over the past two centuries: Journal of Structural Geology, v. 94, p. 68-86., http://dx.doi.org/10.1016/j.jsg.2016.11.003

Martel, S.J., 2016. Effects of small-amplitude periodic topography on combined stresses due to gravity and tectonics. International Journal of Rock Mechanics and Mining Sciences, v. 89, p. 1–13. doi:10.1016/j.ijrmms.2016.07.026

St. Clair, J., Moon, S., Holbrook, W.S., Perron, J.T., Riebe, C.S., Martel, S., Carr, B., Harman, C., Singha, K., and Richter, D.deB., 2015, Geophysical imaging reveals topographic stress control of bedrock weathering: Science, v. 350, p. 534-538.

Tabrizi, A.M., Pan, E., Martel, S.J., Xia, K., Griffith, W.A., and Sangghaleh, A., 2014, Stress fields induced by a non-uniform displacement discontinuity in an elastic half plane: Engineering Fracture Mechanics, v. 132, p. 177-188.

Slim, M., Perron, J., Martel, S.J., and Singha, K., 2014, Topographic stress and rock fracture: A two-dimensional numerical model for arbitrary topography and preliminary comparison with borehole observations: Earth Surface Processes and Landforms, v. 40, p. 512-529.

Martel, S.J., Stock, G.M., and Ito, G., 2014, Mechanics of relative and absolute displacements across normal faults, and implications for uplift and subsidence along the eastern escarpment of the Sierra Nevada, California: Geosphere, v. 10, p. 243-263, doi: 10.1130/GES00968.1.

Goodfellow, B.W., Skelton, A., Martel, S.J., Stroeven, A.P., Jansson, K.N., and Hättestrand, C., 2014, Controls of tor formation, Cairngorm Mountains, Scotland, Journal of Geophysical Research, v. 119, doi:10.1002/2013JF002862.

Stock, G.M., Martel, S.J., Collins, B.D., and Harp, E.L., 2012, Progressive failure of sheeted rock slopes: The 2009-2010 Rhombus Wall rock falls in Yosemite Valley, California, USA: Earth Surface Processes and Landforms (Rock Slope Erosion Special Edition), v. 37, p. 546-561, doi: 10.1002/esp.3192.

Martel, S.J., 2011, Mechanics of curved surfaces, with application to surface-parallel cracks: Geophysical Research Letters, v. 38, L20303, doi:10.1029/2011GL049354.

Kaven, J.O., and Martel, S.J., 2007, Growth of surface-breaching normal faults as a three-dimensional fracturing process: Journal of Structural Geology, v. 29, p. 1463-1476.

Martel, S.J., and Langley, J.S., 2006, Propagation of normal faults to the surface in basalt, Koae fault system, Hawaii: Journal of Structural Geology, v. 28, p. 2123-2143.

Holland, M., Urai, J.L., and Martel, S.J., 2006, The internal structure of fault zones in basaltic sequences: Earth and Planetary Science Letters, v. 248, p. 286-300.

Martel, S.J., 2006, Effect of topographic curvature on near-surface stresses and application to sheeting joints: Geophysical Research Letters, v. 33, L01308, doi:10.1029/2005GL024710.

Grasemann, B., Martel, S.J., and Passchier, C., 2005, Reverse and normal drag along a single dip-slip fault: Journal of Structural Geology, v. 27, p. 999-1010.

d'Alessio, M.A., and Martel, S.J., 2005, Development of strike-slip faults from dikes, Sequoia National Park, California: Journal of Structural Geology, v. 27, p. 35-49.

d'Alessio, M.A., and Martel, S.J., 2004, Fault terminations and barriers to fault growth: Journal of Structural Geology, v. 26, p. 1885-1896.

Martel, S.J., 2004, Mechanics of landslide initiation as a shear fracture phenomenon: Marine Geology, v. 203, p. 319-333.

Ito, G., and Martel, S.J., 2002, Focusing of magma in the upper mantle through dike interaction: Journal of Geophysical Research, v 107, 2223, doi:10.1029/2001JB000251.
Bevis, M., and S. J. Martel, 2001. Oblique plate convergence and interseismic strain accumulation: Geochemistry, Geophysics, Geosystems, v. 2, Paper number 2000GC000125.
Muller, J., Ito, G., and Martel, S.J., 2001, Effects of volcano loading on the propagation of dikes in the lithosphere: Journal of Geophysical Research, v. 106, p. 11,101-11,113.
Martel, S.J., 2000, Modeling elastic stresses in long ridges with the displacement discontinuity method: Pure and Applied Geophysics special issue on landslides and tsunamis, v. 157, p. 1039-1057. [invited manuscript)
Muller, J., and Martel, S.J., 2000, Numerical models of translational landslide rupture surface growth: Pure and Applied Geophysics special issue on landslides and tsunamis, v. 157, p. 1009-1038. [invited manuscript)
Martel, S.J., and Muller, J., 2000, A two-dimensional boundary element method for calculating elastic gravitational stresses in slopes: Pure and Applied Geophysics special issue on landslides and tsunamis, v. 157, p. 989-1007. [invited manuscript)
Martel, S.J., 1999, Analysis of fracture orientation data from boreholes: Environmental and Engineering Geoscience, v. 5, p. 213-233.
Bergbauer, S., and Martel, S.J., 1999, Formation of joints in cooling plutons: Journal of Structural Geology, v. 21, p. 821-835.
Martel, S.J., 1999, Mechanical controls on fault geometry: Journal of Structural Geology, v. 21, p. 585-596.
Hestir, K., Martel, S.J., Vail, S., Long, J.C.S., D'Onfro, P., and Rizer, W., 1998, Inverse hydrologic modeling using stochastic growth algorithms: Water Resources Research, v. 34, p. 3335-3347.
Okubo, C., and Martel, S.J., 1998, Pit crater formation on Kilauea Volcano, Hawaii: Journal of Volcanology and Geothermal Research, v. 86, p. 1-18.
Martel, S.J., and Boger, W., 1998, Geometry and mechanics of secondary fracturing around small three-dimensional faults in granitic rock: Journal of Geophysical Research, v. 103, p. 21,299-21,314.
Bergbauer, S., Martel, S.J., and Hieronymus, C.F., 1998, Thermal stress evolution in cooling pluton environments of different geometries: Geophysical Research Letters, v. 25, p. 707-710.
Martel, S.J., 1997, Effects of cohesive zones on small faults and implications for secondary fracturing and fault trace geometry: Journal of Structural Geology, v. 19, p. 835-847.
Bürgmann, R., Pollard, D.D., and Martel, S.J., 1994, Slip distributions on faults: effects of stress gradients, inelastic deformation, heterogeneous host-rock stiffness, and fault interaction: Journal of Structural Geology, v. 16, p. 1675-1690.
Mauldon, A.D., Karasaki, K., Martel, S.J., Long, J.C.S., Landsfeld, M., Mensch, A., and Vomvoris, S., 1993, An inverse technique for developing models for fluid flow in fracture systems using simulated annealing: Water Resources Research, v. 29, p. 3775-3789.
Martel, S.J., and Peterson, J.E., Jr., 1991, Interdisciplinary characterization of fracture systems at the US/BK site, Grimsel Laboratory, Switzerland: International Journal of Rock Mechanics and Mining Sciences & Geomechanics Abstracts, v. 28, p. 295-323.
Martel, S.J., and Zimmerman, R.W., 1991, Application of linear elastic fracture mechanics to the quantitative evaluation of fluid-inclusion decrepitation...Comment: Geology, v. 19, p. 663-664.
Martel, S.J., 1990, Formation of compound strike-slip fault zones, Mount Abbot quadrangle, California: Journal of Structural Geology, v. 12, p. 869-882.
Segall, P., McKee, E.H., Martel, S.J., and Turrin, B.D., 1990, Late Cretaceous age of fractures in the Sierra Nevada batholith: Geology, v. 18, p. 1248-1251.
Martel, S.J., 1989, Structure and late Quaternary activity of the northern Owens Valley fault zone, Owens Valley, California: Engineering Geology, v. 27, p. 489-507.
Martel, S.J., Harrison, T.M., and Gillespie, A.R., 1989, Adjustments to calculated Quaternary displacement rates across the Fish Springs fault, Owens Valley fault zone, California: Quaternary Research, v. 32, p. 342-343.
Martel, S.J., and Pollard, D.D., 1989, Mechanics of slip and fracture along small faults and simple strike-slip fault zones in granitic rock: Journal of Geophysical Research, v. 94, p. 9417-9428.
Martel, S.J., Pollard, D.D., and Segall, P., 1988, Development of simple fault zones in granitic rock, Mount Abbot quadrangle, Sierra Nevada, California: Geological Society of America Bulletin, v. 100, p. 1451-1465.
Martel, S.J., Harrison, T.M., and Gillespie, A.R., 1987, Late Quaternary vertical displacement rate across the Fish Springs fault, Owens Valley fault zone, California: Quaternary Research, v. 14, p. 113-129.

REPORTS FOR NATIONAL LABORATORIES

Martel, S.J., 1992, Geologic characterization of fractures as an aid to hydrologic modeling of the SCV block at the Stripa mine: Lawrence Berkeley Laboratory report LBL-32310, 81 p.
Long, J.C.S., Majer, E.L., Martel, S.J., Karasaki, K., Peterson, J.E., Jr., Davey, A., and Hestir, K., 1990, Hydrologic characterization of fractured rocks - an interdisciplinary method: Lawrence Berkeley Laboratory report LBL-27863, 183 p.

Davey, A., Karasaki, K., Long, J.C.S., Landsfeld, M., Mensch, A., and Martel, S.J., 1990, Analysis of hydraulic data from the MI fracture zone at the Grimsel Rock Laboratory, Switzerland: Lawrence Berkeley Laboratory report LBL-27864, 92 p.

Martel, S.J., and Peterson, J.E., Jr., 1990, Use of integrated geologic and geophysical information for characterizing the structure of fracture systems at the US/BK site, Grimsel Laboratory, Switzerland: Lawrence Berkeley Laboratory report LBL-27912, 116 p.

Bossart, P., and Martel, S.J., 1990, Hydrogeological implications of ductile and brittle deformations in the Grimsel Crystalline, Upper Aare Valley, Switzerland: Nagra Internal Report 90-19, 12 p.

Martel, S.J., and Peterson, J.E., Jr., 1990, An interdisciplinary methodology for modeling fracture systems, with application to the US/BK site, Grimsel laboratory, Switzerland: 1989 Annual report, Earth Sciences Division, Lawrence Berkeley Laboratory, p. 52-56.

Majer, E.L., Myer, L.R., Peterson, J.E., Jr., Karasaki, K., Long, J.C.S., Martel, S.J., Blümling, P., and Vomvoris, S., 1990, Joint seismic, hydrogeological, and geomechanical investigations of a fracture zone in the Grimsel Rock Laboratory, Switzerland: Lawrence Berkeley Laboratory report LBL-27913, 173 p.

CONFERENCE PROCEEDINGS

Germanovich, L.N., Murdoch, L.C., Garagash, D., Reches, Z., Martel, S.J., Gwaba, D., Elsworth, D., and Onstott, T.C., 2011, Earthquage Rupture Experiment on the Homestake Fault, Proceedings of 2011 NSF Engineering Research and Innovation Conference, Atlanta, Georgia.

Wang, H., Blair, S., Carlson, S., Martel, S., and Tokunaga, T., 2007, Investigating Coupled Mechanical-Hydrological Behavior in a Deep, Underground Science and Engineering Laboratory (DUSEL), 1st Canada-U.S. Rock Mechanics Symposium, 27-31 May, 2007, Vancouver, B.C., edited by E. Eberhardt, D Stead, and T. Morrison, pp. 1115-1122, Taylor & Francis, London.

Martel, S.J., and Bergbauer, S., 1997, Testing a thermal-stress origin of fractures in a pluton, International Journal of Rock Mechanics and Mining Sciences, v. 34: 3-4, paper 191.

Hestir, K., and Martel, S.J., 1996, Inverse hydrologic modeling using stochastic growth algorithms: *in* Proceedings of the XI International Conference on Computational Methods in Water Resources, Cancun, Mexico, July, 1996, v. 2, p. 3-10.

Long, J.C.S., Martel, S., Olsson, O., and Black, J., 1995, Effects of excavation on water inflow to a drift: *in* Proceedings of the conference on fractured and jointed rock masses, Lake Tahoe, California, June 3-5, 1992, p. 543-549.

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