

## PUBLICATIONS – Derek Elsworth

### Journal Articles

1. Rutqvist, J., Freifeld, B., Min, K.-B., Elsworth, D., and Tsang, Y. (2007) Analysis of thermally induced changes in fractured rock permeability during eight years of heating and cooling at the Yucca Mountain drift scale test – identification of irreversible changes. Submitted for publication. *Int. J. R. Mech.* 52 pp.
2. Fitzgerald, M., and Elsworth, D. (2007) The evolution of the pore-pressure field around a moving conical penetrometer of finite size. Submitted for publication. *ASCE J. Eng. Mechs.* pp. 35.
3. Zhang, H.B., Liu, J., and Elsworth, D. (2007) How sorption-induced matrix deformation affects gas flow in coal seams: a new FE model. Submitted for publication. *Int. J. R. Mechs.* pp 30.
4. Yasuhara, H., and Elsworth, D. (2007) Roles of pressure solution in fault restrengthening. Submitted for publication. *J. Geophys. Int.* pp. 30.
5. Yasuhara, H., and Elsworth, D. (2007) Compaction of a fracture moderated by competing roles of stress corrosion and pressure solution. Submitted for publication. *J. Geophys. Res.* pp. 30.
6. Faoro, I., Niemeijer, A., Marone, C., and Elsworth, D. (2007) The influence of shear and deviatoric stress on the evolution of fractures in novaculite and diorite. Submitted for publication.
7. Tang, C.A, Chang,X., Zhu, W.C., Yang, T.H., Liu, J., Song, L., and Elsworth, D. (2006) Numerical modeling of fracture saturation in layered materials. Submitted for publication. *Eng. Geol.* 33 pp.
8. Sheng, J.C. Liu, J., Elsworth, D., Zhu, W.C., and Liu, J.X. (2006) A coupled multiphysics model of miscible fluid displacement in fractured rocks: the role of stress. Submitted for publication. 40 pp.
9. Sheng, J.C. Liu, J., Elsworth, D., Zhu, W.C., and Liu, J.X. (2006) Digital image based simulation of multiphysics in fractured rocks. Submitted for publication. 40 pp.
10. Elsworth, D. and Lee, D.S. (2007) Limits in Determining Permeability from On-the-fly uCPT Soundings. *Géotechnique*. Vol. 57, No. 8. pp. 679-685. [pdf](#)
11. Ouyang, Z., Elsworth, D., et al. (2007) Characterization of hydraulic fracture with inflated dislocation moving within a semi-infinite medium, *Journal of China University of Mining & Technology*, Junne. Vol.17 No.2, pp 220-225.
12. Ouyang, Z., Elsworth, D., et al. (2007) A poroelastic PKN hydraulic fracture model incorporating dislocation theory: Part A. *Progress in Mining Science and Safety Technology*, Science Press USA Inc., ISBN 978-7-03-018737-6, pp. 384-390.
13. Trakoolngam, K.,and Elsworth, D. (2006) The effects of wetting saturation on sand production in wells. Submitted for publication. *J. Petroleum Tech. SPE.* 40 pp.
14. Lee, D.S., Elsworth, D., Butler, J. and Dietrich, P. (2006) Direct evaluation of hydraulic conductivity from uCPT soundings: validation against data from Nauen test site, Germany. Submitted for publication. *J. Hydrol.* 40 pp.
15. Yasuhara, H., Elsworth, D., Polak, A., Liu, J., Grader, A., and Halleck, P. (2006) Spontaneous Permeability Switching in Fractures in Carbonate: Lumped Parameter Representation of Mechanically- and Chemically-Mediated Dissolution. *Transport in Porous Media*. Vol. 65, pp. 385-409. [pdf](#)
16. Elsworth, D., Yasuhara, H. (2006) Mechanical and transport constitutive models for fractures subject to dissolution and precipitation. Submitted for publication. *Int. J. R. Mechs.* 30 pp.
17. Lee, D.-S., Elsworth, D., Hryciw, R., and Butler, J. (2006) Hydraulic conductivity measurements from on-the-fly uCPT sounding and from VisCPT. Submitted for publication. *J. Geotech. and Geo-Env. Eng.* 34 pp.
18. Hucks, A., Flemings, P., Elsworth, D., Kinoshita, M. (2006) Hydrologic monitoring of the Nankai accretionary prism. In press. *J. Geophys. Res.* 40 pp.
19. Fitzgerald, M., Elsworth, D. (2006) Evaluation of liquefaction susceptibility from uCPT-measured excess pore pressures. Submitted for publication. *J. Geotech. and Geoenv. Eng.* 30 pp.
20. Zhu, W.C., Liu, J., Elsworth, D., Polak, A., Grader, A., Sheng, J.C., and Liu, J.X. (2005) Tracer transport in a fractured chalk: x-ray characterization and digital image-based (DIB) simulation. *Transport in Porous Media*. Vol. 70, pp. 25 – 42. [pdf](#)

21. Mattioli, G.S., Voight, B., Linde, A.T., Sacks, I.S., Watts, P., Widiwijayanti, C., Young, S.R., Hidayat, D., Elsworth, D., Malin, P.E., Shalev, E., Van Boskirk, E., Johnstson, W., Sparks, R.S.J., Neuberg, J., Bass, V., Dunkley, P., Herd, R. Syers, T., Williams, P., Williams, D. (2007) Unique and remarkable dilatometer measurements of pyroclastic flow-generated tsunamis. *Geology*. Vol. 35, No. 1, pp. 25-28. doi: 10.1130/G22931A.1 [pdf](#)
22. Taron, J. Elsworth, D., Thompson, G., and Voight, B. (2007) Mechanisms for rainfall-concurrent lava dome collapse at Soufriere Hills volcano, 2000-2002. *J. Volcan. & Geotherm. Res.* Vol. 1 pp. 195-209. [pdf](#)
23. Yang, T.H. Liu, J., Elsworth, D., Zhu, W.C., Tham, L.G. and Tang, C.A. (2007) A coupled flow-stress-damage model for groundwater outbursts from an underlying aquifer into mining excavations. *Int. J. R. Mech.*, Vol. 44. pp. 87 – 97. [pdf](#)
24. Liu, J., Sheng, J., Polak, A.B., Elsworth, D., Yasuhara, H., and Grader, A.S. (2006) A fully-coupled hydrological-mechanical-chemical model for fracture sealing and preferential opening. *Int. J. R. Mechs. And Min. Sci.*. Vol. 43, No. 1., pp. 23-36. [pdf](#)
25. Yasuhara, H., and Elsworth, D. (2006) A numerical model simulating reactive transport and evolution of fracture permeability. *Int. J. Num. and Anal. Meth. in Geomechs.* Vol. 30, No. 10, pp. 1039 – 1062. [pdf](#)
26. Elsworth, D., and Yasuhara, H. (2006) Short timescale chemo-mechanical effects and their influence on the transport properties of fractured rock. *Pure and Appl. Geophys.* Vol. 163, pp. 2051 - 2070. DOI 10.1007/s00024-006-0113-3 [pdf](#)
27. Voight, B.; Linde, A. T.; Sacks, I. S.; Mattioli, G. S.; Sparks, R. S. J.; Elsworth, D.; Hidayat, D.; Malin, P. E.; Shalev, E.; Widiwijayanti, C.; Young, S. R.; Bass, V.; Clarke, A.; Dunkley, P.; Johnston, W.; McWhorter, N.; Neuberg, J.; Williams, P. (2006) Unprecedented pressure increase in deep magma reservoir triggered by lava-dome collapse *Geophys. Res. Lett.*, Vol. 33, No. 3, L03312 <http://dx.doi.org/10.1029/2005GL024870>. [Cover page article in GRL; AGU highlighted paper; cited and abstracted in Nature] [pdf](#)
28. Elsworth, D., Lee, D.S., Hryciw, R., Shin, S. (2006) Pore pressure response following undrained uCPT sounding in a dilating soil. *J. Geotech. and Geoenv. Eng.* Vol. 132, No. 11. pp. 1485 - 1495. [pdf](#)
29. Yasuhara, H., Polak, A., Mitani, Y., Grader, A., Halleck, P., and Elsworth, D. (2006) Evolution of fracture permeability through fluid-rock reaction under hydrothermal conditions. *Earth and Planetary Science Letters*. Vol. 244, pp. 186 – 200. [pdf](#)
30. Yasuhara, H., Polak, A., Mitani, Y., Grader, A., Halleck, P., and Elsworth, D. (2005) Evolution of fracture permeability through reactive flow at elevated temperature. *Trans. Geotherm. Res. Council*. Vol. 29, pp. 437 – 441. [pdf](#)
31. Zhu, W.C., Liu, J., Yang, T.H., Sheng, J.C., and Elsworth, D. (2006) Effects of local heterogeneities on the hydromechanics of fractured rocks. *Int. J. R. Mechs.* Vol. 43, pp. 1182 – 1199. [pdf](#)
32. Widiwijayanti, C., Clarke, A., Elsworth, D., and Voight, B.(2005) Geodetic constraints on the shallow magma system at Soufrière Hills volcano, Montserrat. *Geophys. Res. Lett.* Vol. 32, L11309, doi:10.1029/2005GL022846 [AGU Editor’s Citation]. [pdf](#)
33. Yasuhara, H., Marone, C., and Elsworth, D. (2005) Fault zone restrengthening and frictional healing: the role of pressure solution. *J. Geophys. Res.* Vol. 110, B06310, doi:10.1029/2004JB003327. [pdf](#)
34. Ouyang, Z. Elsworth, D., et al. (2005) Theory of volumetric moving dislocation in a poroelastic halfspace and characterization of magma intrusion events. *J. China University of Geosciences*, Vol. 16, No.1, pp 58-65.
35. Liu, J, Polak, A, Elsworth, D, and Grader, A. (2005) Dissolution-induced preferential flow in a limestone fracture. *J. Contam. Hydrol.* Vol. 78, No. 1-2, pp. 53-70.
36. Vinciguerra, S., Elsworth, D., and Malone, S. (2005) The 1980 pressure response and flank failure of Mt. St. Helens (USA) inferred by seismic scaling exponents. *J. Volc. and Geotherm. Res.* Vol. 144, pp. 155-168. [pdf](#)
37. Elsworth, D. and Lee, D.S. (2005) Permeability determination from on-the-fly piezocone sounding. *ASCE J. Geotech and Geoenv Eng.*, Vol. 131, No. 5, pp. 643 – 653. [pdf](#)
38. Elsworth, D. and Lee, D.S. (2005) Indentation of a free-falling lance penetrometer into a poroelastic seabed. *Int. J. Num. & Anal. Meth. in Geomechs.*, Vol. 29, pp. 141-162, doi: 10.1002/nag.408. [pdf](#)

39. Simmons, J., Elsworth, D., and Voight, B. (2005) Classification and idealized limit-equilibrium analyses of dome collapses at Soufriere Hills volcano, Montserrat, during growth of the first lava dome: November 1995 to March 1998. *J. Volc. and Geotherm. Res.*, Vol. 139, pp. 241-258; doi:10.1016/j.jvolgeores.2004.08.009. [pdf](#)
40. Polak, A., Elsworth, D., Liu, J., and Grader, A. (2004) Spontaneous switching of permeability changes in a limestone fracture under net dissolution. *Water. Resour. Res.*, Vol. 40, W03502, doi:10.1029/2003WR002717. [pdf](#)
41. Yasuhara, H., Elsworth, D., and Polak, A. (2004) The evolution of permeability in a natural fracture: significant role of pressure solution. *J. Geophys. Res.*, Vol. 109, B03204, doi:10.1029/2003JB002663 [pdf](#)
42. Simmons, J., Elsworth, D., and Voight, B. (2004) Stability of exogenous lava domes during intense precipitation. *Bull. Volcanol.*, Vol., 66, pp. 725–734; doi: 10.1007/s00445-004-0353-y. [pdf](#)
43. Elsworth, D., Voight, B., Thompson, G., and Young, S.R. (2004) A thermal-hydrologic mechanism for rainfall-triggered collapse of lava domes. *Geology*. Vol. 32, No. 11; pp. 969–972; doi: 10.1130/G20730.1. [pdf](#)
44. Yasuhara, H., Elsworth, D., and Polak, A. (2003) A mechanistic model for compaction of granular aggregates moderated by pressure solution. *J. Geophys. Res.* 108(B11), 2530, doi:10.1029/2003JB002536. [pdf](#)
45. Polak, A., Elsworth, D., Yasuhara, H., Grader, A.S., and Halleck, P.M. (2003) Permeability reduction of a natural fracture under net dissolution by hydrothermal fluids, *Geophys. Res. Lett.*, 30(20), 2020, doi:10.1029/2003GL017575. [pdf](#)
46. Lee, D.S. and Elsworth, D. (2004) Indentation of a sharp penetrometer into a poroelastic seabed, *Am. Soc. Civ. Eng., J. E. Mech.*, Vol. 130, No. 2, pp. 170-179. [pdf](#)
47. Elsworth, D. and Voight, B. (2001) The mechanics of harmonic gas-pressurization and failure of lava domes. *Geophys. J. Int.*, of the R. Astronomical Soc., 145, 187 – 198. [pdf](#)
48. Elsworth, D. (2001) Mechanical response of lined and unlined heated drifts. *R. Mechs. and R. Eng.*, Vol. 34, No. 3, pp. 201-216. [pdf](#)
49. Liu, J., Elsworth, D., Brady, B.H., and Mulhaus, H. (2000) Strain-dependent fluid flow defined through rock mass classification schemes. *R. Mech. and R. Eng.*, Vol. 33, No. 2, pp 75-92. [pdf](#)
50. Voight, B. and Elsworth, D. (2000) Instability and collapse of lava domes. *Geophys. Res. Lett.*, Vol. 27, No. 1, pp. 1-4. [pdf](#)
51. Liu, J., Elsworth, D. and Brady, B. H. G. (1999) A coupled hydromechanical system defined through rock mass classification schemes. *Int. J. Num. and Anal. Meth. in Geomechs.* Vol. 23, No. 15, pp. 1945 – 1960. [pdf](#)
52. Bai, M., Bouhroum, A. and Elsworth, D. (1999) Minimizing numerical oscillation in coupled flow problems. *Oil Gas – European Mag.*, Vol. 25, No. 2, pp. 37-39.
53. Liu, J., Elsworth, D. and Brady, B. H. G. (1999) Linking stress-dependent effective porosity and hydraulic conductivity fields to RMR. *Int. J. R. Mech., Min. Sci. & Geomech. Abstr.*, Vol. 36, No. 5, pp. 581-596. [pdf](#)
54. Bai, M., Meng, F., Elsworth, D., Zamman, M., Scott, T.E. and Roegiers, J.-C. (1999) Numerical modeling of coupled flow and deformation in fractured rock specimens. *Int. J. Num. and Anal. Meth. in Geomechs.*, Vol. 23, pp. 141-160.
55. Bai, M., Meng, F., Elsworth, D. and Roegiers, J.-C. (1999) Analysis of stress-dependent permeability in non-orthogonal flow and deformation fields. Submitted for publication, *R. Mech. and R. Eng.*, vol. 32, No. 3, pp. 195 – 219. [pdf](#)
56. Elsworth, D. and Day, S. J. (1999) Flank collapse triggered by intrusion: the Canarian and Cape Verde archipelagos. *J. Volcanol. & Geotherm. Res.*, Vol. 95, No. 1-4, pp. 323 – 340. [pdf](#)
57. Liu, J. and Elsworth, D. (1999) Evaluation of pore water pressure fluctuation around an advancing longwall panel. *Adv. Water Res.*, Vol. 22, No. 6, pp. 633 – 644. [pdf](#)
58. Elsworth, D. (1998) Indentation of a sharp penetrometer in a poroelastic medium. *Int. J. Solids and Struct.*, Vol. 35, No. 34-35, pp. 4895 - 4904. [pdf](#)
59. Kim, J.-M., Parizek, R.R., and Elsworth, D. (1998) Evaluation of fully-coupled strata deformation and groundwater flow in response to longwall mining. *Int. J. R. Mechs., Min. Sci. and Geomechs. Abstr.*, Vol. 34, No. 8, pp. 1187 – 1200. [pdf](#)

60. Liu, J. and Elsworth, D. (1998) Three-dimensional effects of hydraulic conductivity enhancement and desaturation around mined panels. *Int. J. R. Mechs., Min. Sci. and Geomechs. Abstr.*, Vol. 34, No. 8, pp. 1139 - 1152. [pdf](#)
61. Bai, M., Elsworth, D., Inyang, H.I. and Roegiers, J.-C. (1997) Modeling non-uniform solute transport using a triple porosity model. *J. Environmental Eng. Div. ASCE*, Vol. 123, No. 11, pp. 1116 - 1125.
62. Liu, J., Elsworth, D. and Matetic, R.J. (1997) Evaluation of the post-mining groundwater regime following longwall mining. *Hydrological Processes*, Vol. 11, 1945-1961. [pdf](#)
63. Voight, B. and Elsworth, D. (1997) Failure of volcano slopes. *Geotechnique*, Vol. 47, No. 1, pp. 1 - 31. [pdf](#)
64. Bai, M., Meng, F., Elsworth, D., Zaman, Z. and Roegiers, J.-C. (1997) Numerical modeling of stress-dependent permeability, *Int. J. R. Mech. and Min. Sci.*, Vol. 34, No. 3-4, Paper No. 020. [pdf](#)
65. Liu, J., Elsworth, D. and Brady, B.H. (1997) Analytical evaluation of post-excavation hydraulic conductivity field around a tunnel. *Int. J. R. Mech. and Min. Sci.*, Vol. 34, No. 3-4, Paper No. 181. [pdf](#)
66. Piggott, A. R. and Elsworth, D. (1996) Displacement of formation fluids by hydraulic fracturing. *Geotechnique*, Vol. 46, No. 4, pp. 671 - 681. [pdf](#)
67. Sims, J.E., Elsworth, D. and Cherry, J.A. (1996) Stress dependent flow through fractured clay till: a laboratory study. *Can. Geotech. J.*, Vol. 33, No. 3, pp. 449 - 457. [pdf](#)
68. Fischer, M.P., Elsworth, D., Alley, R.B. and Engelder, J.T. (1996) Finite element analysis of the modified ring test for determining Mode I fracture toughness. *Int. J. R. Mech. Min. Sci. & Geomech. Abstr.*, Vol. 33, No. 1, pp. 1 - 16. [pdf](#)
69. Bai, M., Roegiers, J.-C., and Elsworth, D. (1995) Poromechanical response of fractured porous rock masses. *J. Petro. Sci. & Eng.*, Vol. 13, pp. 155 - 168. [pdf](#)
70. Bai, M. and Elsworth, D., (1995) Modeling of miscible flow in multi-component porous media. *Transport in Porous Media*, Vol. 21, No. 1, pp. 19 - 46. [pdf](#)
71. Bai, M. and Elsworth, D. (1995) Influence of mining geometry on mine hydro-geo-mechanics. *Trans. Society of Mining Engineers*, Vol. 296, July, pp 1856 - 1863. [pdf](#)
72. Matetic, R.J., Liu, J. and Elsworth, D. (1995) Modeling the effects of longwall mining on the ground water system. U.S. Bureau of Mines, Report of Investigations, RI 9561, ISSN 1066-5552, 14 pp.
73. Elsworth, D. and Voight, B. (1995) Dike intrusion as a trigger for large earthquakes and the failure of volcano flanks. *J. Geophys. Res.*, Vol. 100, No. B4, April, pp. 6005-6024. [pdf](#)
74. Elsworth, D. and Liu, J. (1995) Topographic influence of longwall mining on groundwater. *Groundwater*, Vol. 33, No. 5, September-October, pp. 786 - 793. [pdf](#)
75. Li, J. and Elsworth, D. (1995) A Gauss-Newton method for aquifer parameter identification. *Groundwater*, Vol. 33, No. 4, pp. 662 - 668. [pdf](#)
76. Bai, M., Bouhroum, A. and Elsworth, D. (1994) Some aspects of solving advection dominated flows. *Hydrocarbon Technology*, Vol. 47, No. 1, pp. 11 - 17. [pdf](#)
77. Bai, M. and Elsworth, D. (1994) Modeling of subsidence and stress-dependent hydraulic conductivity for intact rock and fractured porous media. *R. Mech. and R. Eng.*, Vol. 27, No. 4, pp. 209 - 234.
78. Bai, M. and Elsworth, D. (1993) Dual-porosity poroelastic approach to behavior of porous media over a mining panel. *Trans. Inst. Mng. & Met., U.K., Section A*, Vol. 102, pp. 114 - 124.
79. Bai, M., Elsworth, D. and Roegiers, J.-C. (1993) Modeling of naturally fractured reservoirs using deformation-dependent flow mechanism. *Int. J. R. Mech. Min. Sci. & Geomech. Abstr.*, Vol. 30, No. 7, pp. 1185 - 1191. [pdf](#)
80. Ouyang, Z. and Elsworth, D. (1993) Evaluation of groundwater flow into mined panels. *Int. J. R. Mechs. Min. Sci. & Geomechs. Abstr.* Vol. 30, No. 2, pp. 71 - 80. [pdf](#)
81. Piggott, A.R. and Elsworth, D. (1993) Laboratory assessment of the equivalent apertures of a rock fracture. *Geophys. Res. Lett.*, Vol. 30, No. 13, pp. 1387 - 1390. [pdf](#)
82. Piggott, A.R. and Elsworth, D. (1993) Characterization of fracture aperture by inverse analysis. *Can. Geotech. J.*, Vol. 30, pp. 637 - 646. [pdf](#)

83. Bai, M. and Elsworth, D. (1993) Multi-porosity/multi-permeability approach to the simulation of naturally fractured reservoirs. *Water Resour. Res.*, Vol. 29, No. 6, pp. 1621 - 1633. [pdf](#)
84. Elsworth, D. (1993) Analysis of piezocene data using dislocation based methods. *J. Geotechnical Engineering*, ASCE, Vol. 119, No. 10, pp. 1601 - 1623. [pdf](#)
85. Bai, M. and Elsworth, D. (1993) Transient poroelastic response of porous media over a mining panel. *Engineering Geology*, Vol. 35, pp. 49 - 64. [pdf](#)
86. Elsworth, D. and Voight, B. (1992) Theory of dike intrusion in a saturated porous solid. *J. Geophys. Res.*, Vol. 97, No. B6, pp. 9105 - 9117. [pdf](#)
87. Xiang, J. and Elsworth, D. (1992) Direct and integration methods of parameter estimation of groundwater transport systems. *Appl. Math. Model.*, Vol. 16, No. 8, pp. 404 - 413. [pdf](#)
88. Piggott, A.R. and Elsworth, D. (1992) Analytical models for flow through obstructed domains. *J. Geoph. Res.*, Vol. 97, No. B2, pp. 2085 - 2093. [pdf](#)
89. Elsworth, D. (1992). Pore pressure response due to penetration through layered media. *Int. J. Num. Anal. Meth. in Geomechs.*, Vol. 16, No. 1, pp. 45 - 64. [pdf](#)
90. Elsworth, D. and Bai, M. (1992). Flow-deformation response of dual porosity media. *J. Geotech. Eng. Div., ASCE*, Vol. 118, No. 1, pp. 107 - 124. [pdf](#)
91. Elsworth, D. (1991). Dislocation analysis of penetration in saturated porous media. *J. Eng. Mech. Div., ASCE*, Vol. 117, No. 2, pp 391-408. [pdf](#)
92. Ylinen, A.M. and Elsworth, D. (1991). Heat and mass transfer around an advancing penetrometer. *Int. J. Heat and Mass Transfer*, Vol. 34, No. 6, pp. 1407 - 1416. [pdf](#)
93. Ouyang, Z. and Elsworth, D. (1991). A phenomenological failure criterion for brittle rock. *Rock Mechanics and Rock Engineering*, Vol. 24, pp. 133 - 153. [pdf](#)
94. Xiang, J. and Elsworth, D. (1990) Parameter identification of nonsteady groundwater flow systems. *Advances in Water Resources*, Vol. 15, pp. 259 - 269. [pdf](#)
95. Xiang, J. and Elsworth, D. (1990). Low-order finite elements for parameter identification in groundwater flow. *Appl. Math. Model.*, Vol. 15, No. 5, pp. 256 - 266. [pdf](#)
96. Elsworth, D. (1990). A comparative evaluation of the parallel flow and spherical reservoir models of HDR geothermal systems. *J. Volcanology and Geothermal Res.*, Vol. 44, pp. 283 - 293. [pdf](#)
97. Bai, M. and Elsworth, D. (1990). Some aspects of mining under aquifers in China. *Min. Sci. and Tech.*, Vol. 10, pp. 81 - 91. [pdf](#)
98. Bai, M., Elsworth, D., Li, Z. and Tomlin, N. (1990). Evaluation of stresses and displacements induced in discretely layered media. *Int. J. R. Mechs. Min. Sci.*, Vol. 1, No. 1, pp. 23 - 31.
99. Elsworth, D. (1990). Theory of partially drained piezometer insertion. *J. Geotech. Eng. Div., ASCE*, Vol. 116, No. 6, pp. 899 - 914. [pdf](#)
100. Zhihua, O. and Elsworth, D. (1989). An adaptive characteristics method for advective-diffusive transport. *Appl. Math. Model.*, Vol. 13, pp 682-692. [pdf](#)
101. Elsworth, D. (1989). Thermal recovery from a multiple stimulated HDR reservoir. *Geothermics*, Vol. 18, No. 5/6, pp. 761-774. [pdf](#)
102. Elsworth, D. (1989). Theory of thermal recovery from a spherically stimulated HDR reservoir. *J. Geophys. Res.*, Vol. 94, No. B2, pp. 1927 - 1934. [pdf](#)
103. Elsworth, D. and Xiang, J. (1989). A reduced degree of freedom model for permeability enhancement in blocky rock. *Geothermics*, Vol. 18, No. 5/6, pp. 691-709. [pdf](#)
104. Piggott, A. R. and Elsworth, D. (1989). Physical and numerical studies of a fracture system model. *Water Resour. Res.*, Vol. 25, No. 3, pp. 457 - 462. [pdf](#)

105. Elsworth, D. (1989). Thermal permeability enhancement of blocky rocks: plane and radial flow. Proceedings E.E.C. and C.N.R.S. Workshop of Fluid Flow Through Strong Fractured Rocks, Garchy, France, April. 24 pages. and Int. J. R. Mech. Min. Sci., Vol. 26, No. 3/4, pp. 329 - 339. [pdf](#)
106. Elsworth, D. (1987). A boundary element-finite element procedure for porous and fractured media flow. Water Resources Research, Vol. 23, No. 4, pp. 551 - 560. [pdf](#)
107. Elsworth, D. and Goodman, R. E. (1987). Numerical modelling of fractured rock masses using coupled numerical schemes. Chapter 46 in, Coupled Processes Associated with Nuclear Waste Repositories, Edited by C. F. Tsang, Academic Press. [pdf](#)
108. Elsworth, D. (1986). A model to evaluate the transient hydraulic response of three-dimensional sparsely fractured rock masses. Water Resources Research, Vol. 22, No. 13, pp. 1809 - 1819. [pdf](#)
109. Elsworth, D. (1986). A hybrid boundary element - finite element analysis procedure for fluid flow simulation in fractured rock masses. International Journal of Numerical and Analytical Methods in Geomechanics, Vol. 10, No. 6, pp. 569 - 584. [pdf](#)
110. Elsworth, D. and Doe, T. W. (1986). Application of non-linear flow laws in determining rock fissure geometry from single borehole pumping tests. International Journal of Rock Mechanics and Min. Sci., Vol. 23, No. 3, pp. 245 - 254. [pdf](#)
111. Elsworth, D. and Goodman, R. E. (1986). Characterization of rock fissure hydraulic conductivity using idealized wall roughness profiles. International Journal of Rock Mechanics and Min. Sci., Vol. 23, No. 3, pp. 233 - 244. [pdf](#)
112. Elsworth, D. (1986). Wedge stability around a circular tunnel: plane strain condition. International Journal of Rock Mechanics and Min. Sci., Vol. 23, No. 2, pp. 177 - 182. [pdf](#)