References

Alboin C, Jaffre J, Joly P, Roberts J, Serres C (2002) A comparison of methods for calculating the matrix block source term in a double porosity model for contaminant transport. Comput Geosci 6:523–543

Aler J, Du Mouza J, Arnould M (1996) Measurement of the fragmentation efficiency of rock mass blasting and its mining applications. Int J Rock Mech Min Sci & Geomech Abstr 33:125–140

Allen DM, Macie DC, Wie M (2004) Groundwater and climate change: a sensitivity analysis for the Grand Forks aquifer southern British Columbia. Canada. Hydrogeol J 12(3):270–290

American Society for Testing and Materials (2006) Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

Anagnostou G (1995) The influence of tunnel tunnelling on the hydraulic head. Int J Numer Anal Meth Geomech 19:725–746

Andersson J, Dverstorp B (1987) Conditional simulations of fluid flow in three-dimensional network of discrete fractures. Water Resour Res 23:1876–1886

Angelini P, Dragoni W (1997) The problem of modelling limestone springs: the case of Bagnara (North Apennines, Italy). Ground Water 35(4):612–618

Baecher GB, Lanney NA, Einstain HH (1977) Statistical description of rock properties and sampling. Proc 18th U.S. Symp on Rock Mech Colorado 5C1.1–5C1.8

Bai M, Elsworth D (1994) Modelling of subsidence and stress-dependent hydraulic conductivity for intact and fractured porous media. Rock Mech Rock Eng 27(4):209–234

Bai M, Elsworth D, Roegiers JC (1997) Triple-porosity analysis of solute transport. J Contam Hydro 28:247–266

Bai M, Meng F, Elsworth D, Roegiers JC (1999) Analysis of stress-dependent permeability in non orthogonal flow and deformation field. Rock Mech Rock Eng 32(3):195–219

Bandis SC, Barton NR, Christianson M (1985) Application of a new numerical model of joint behaviour to rock mechanics problems. Fundamentals of Rock Joints. Proceedings of the International Symposium on Fundamentals of Rock Joints. Bjorkliden, September 1985, Centek, Luleå, Sweden 345–356

Bandis SC, Lumsden AC, Barton NR (1983) Fundamentals of rock joint deformation. Int J Rock Mech Min Sci & Geom Abstr 20:249–268

Barenblatt GE, Zheltov IP, Kochina IN (1960) Basic concepts in the theory of seepage of homogeneous fluids in fissured rocks. J Appl Math and Mech 24:1286–1303

Barla G (2000) Lessons learnt from the excavation of a large diameter TBM tunnel in complex hydrogeological conditions, GeoEng2000. International Conference on Geotechnical and Geological Engineering 938–995

Barton NR (1973) Review of new shear strength of rock and rock joints. Eng Geol 8:287–332

Barton NR, Choubey V (1977) The shear strength of rock joints in theory and practice. Rock Mech 10:1–54

Bear J (1972) Dynamics of Fluids in Porous Media. Elsevier, New York

L. Scesi, P. Gattinoni, *Water Circulation in Rocks*, DOI 10.1007/978-90-481-2417-6_BM2,

Bear J (1993) Modelling flow and contaminant transport in fractured rocks. In: Bear J, Tsang CF, DeMarsily G (eds) Flow and contaminant transport in fractured rock. Academic Press, San Diego

Bear J, Berkowitz B (1987) Groundwater flow and pollution in fractured rock aquifers. In: Nowak P (ed) Development in hydraulic engineering. Elsevier, New York

Beer AJ, Stead D, Coggan JS (2002) Estimation of the Joint Roughness Coefficient (JRC) by visual comparison. Rock Mech Rock Eng 35:65–74

Belem T, Homand-Etienne F, Souley M (2000) Quantitative parameters for rock joint surface roughness. Rock Mech Rock Eng 33(4):217–242

Billaux D (1990) Hydrogéologie des milieux fracturés. Géométrie, connectivité et comportement hydraulique. Document Bureau de Recherches Géologiques et Minières 186

Bini A, Forcella F, Jadoul F, Orombelli G (eds) (2000) Carta Geologica della Provincia di Bergamo alla scala di 1:50000

Birk S, Liedl R, Sauter M (2004) Identification of localised recharge and conduit flow by combined analysis of hydraulic and physico-chemical spring responses (Urenbrunnen, SW-Germany). J Hydrol 286:179–193

Brace WF (1980) Permeability of argillaceous and crystalline rocks. Int J Rock Mech Min Sci & Geomech Abstr 17:241–251

Brouyère S, Carabin G, Dassargues A (2004) Climate change impacts on groundwater resources: modelled deficits in a chalky aquifer, Geer basin. Belgium Hydrogeol J 12:123–134

Brown SR, Kranz RL, Bonner BP (1986) Correlation between the surface of natural rock joints. Geophys Res Lett 13:1430–1433

Burgess A (1977) Groundwater movements around a repository, regional groundwater flow analysis KBS54:03 Kaernbraenslesaekerhet, Stockholm, Sweden

Cacas MC, Ledoux E, DeMarsily G, Tillie B, Barbreau A, Durand E, Feuga B, Peaudecerf P (1990) Modelling fracture flow with a stochastic discrete fracture network: calibration and validation 1. The flow model. Water Resour Res 26:479–789

Cambi C, Dragoni W (2000) Groundwater yield, climatic changes and recharge variability: considerations out of the modelling of a spring in the Umbria-Marche Apennines. Hydrogéologie 4:11–25

Cassan M (1980) Les essais d'eau dans la reconnaissance des sols. Eyrolles, Paris

Catani F (1999) Fractal properties of the Caotic Complex: methods and applications in Tuscany (Italy) Proceedings of the Workshop di Informatica applicata alle scienze della terra, 14–16 settembre, San Sepolcro (AR)

Chardon M (1975) Les Prealpes Lombardes et leurs bordures. Thesis Univo Aix-Marseille

Ciceri E, Gambillara R, Masciocchi N, Monticelli D, Tumiati S (2004) Characterisation of the Eve verda in the St. Marcel valley, Aosta (Italian Western Alps). Int Geol Congr 32(1):359

Citrini D, Noseda G (1987) Idraulica. Casa Editrice Ambrosiana, Milano

Civita M (2005) Idrogeologia applicata e ambientale. Casa Editrice Ambrosiana, Milano

Civita M, De Maio M, Fiorucci A, Pizzo S, Vigna B (2002) Le opere in sotterraneo e il rapporto con l'ambiente: problematiche idrogeologiche. Meccanica e Ingegneria delle Rocce, Torino

Cooper HH, Jacob CE (1946) A generalized graphical method for evaluating formation constants and summarizing well field history. Am Geophys Union Trans 27:526–534

Cotecchia V (1993) Opere in sotterraneo: rapporto con l'ambiente. XVIII Convegno Nazionale di Geotecnica:145–190

Croci A, Francani V, Gattinoni P (2003) Studio idrogeologico del bacino del Torrente Esino. Quaderni di geologia applicata 10(2):148–166

D'Aquino L (2006) Analisi delle prove idrauliche su di un acquifero fratturato attraverso il metodo sperimentale di Kazemi. XXX° Convegno di Idraulica e Costruzioni Idrauliche – IDRA 2006:1–15

De Marsily G (1986) Quantitative hydrogeology: groundwater hydrology for engineers. Academic Press, San Diego

Delleur JW (1999) The handbook of groundwater engineering. CRC Press LLC, Boca Raton

Dematteis A, Kalamaras G, Eusebio A (2001) A systems approach for evaluating springs drawdown due to tunnelling. World Tunnel Congress AITES-ITA 2001 1:257–264
Dershowitz WS (1984) Rock joint systems, Ph.D. Thesis, MIT, Cambridge
Dershowitz WS, Einstein HH (1988) Characterizing rock joint geometry with joint system models. Rock Mech Rock Eng 21(1):21–51
Diodato DM (1994) A compendium of fracture flow codes. Energy System Division, Argonne National Laboratory, Technical Memorandum 96
Domenico PA, Schwartz FW (1990) Physical and chemical hydrogeology. John Wiley & Sons Inc., New York
Drogue G, Pfister L, Leviandier T, Idrissi A, Iffy JF, Matgen P, Humbert J, Hoffmann L (2004) Simulation of the spatio-temporal variability of streamflow response to climate change scenarios in a mesoscale basin. J Hydrol 293:255–269
Dunning CP, Feinstein DT, Hunt RJ, Krohelski JT (2004) Simulation of ground-water flow, surface-eater flow, and a deep sewer tunnel system in the Menomonee Valley, Milwaukee, Wisconsin. USGS Scientific Investigations Report 2004 5031
Dverstorp B, Andersson J (1989) Application of the discrete fracture network concept with field data: possibilities of model calibration and validation. Water Resour Res 25(3):540–550
Edmunds WM, Smedley PL (2000) Residence time indicators in groundwater: the East Midlands Triassic sandstone aquifer. Appl Geochem 15:737–752
El Tani M (2003) Circular tunnel in a semi-infinite aquifer. Tunnelling and Groundwater Space Technology 18:49–55
Elhatip H, Gunay G (1998) Karst hydrogeology of the Kas-Kalkan Springs along the Mediterranean cost of Turkey. Environ Geol 36(1–2):150–158
Federico, F (1984) Il processo di drenaggio da una galleria in avanzamento. R.I.G. 4:191–208
Feng Q, Fardin N, Jing L, Stephansson O (2003) A new method for in-situ non-contact roughness measurement of large rock fracture surfaces. Rock Mech Rock Eng 36(1):3–25
Fiorillo F, Esposito L, Guadagno FM (2007) Analysis and forecast of water resources in an ultra-centenarian spring discharge series from Serino (Southern Italy). J Hydrol 336:125–138
Francani V (1997) Idrogeologia generale e applicata. CittàStudiEdizioni, Milano
Francani V (2002) Gestione dei siti inquinati: dalle indagini alla bonifica. AIGA Bari 21–23 october
Francani V, Fumagalli D, Gattinoni P, Mottini S (2005) Modelli concettuali dinamici per l'analisi del rischio geologico a fini progettuali. Quaderni di Geologia Applicata, 12 (1), Pitagora Editrice (Bologna), pp 35–47
Gangi AF (1978) Variation of whole and fractured porous rock permeability with confining pressures. Int J Rock Mech Min Sci & Geomech Abstr 15
Garbrecht J, Piechota TC (2006) *Climate variations, climate change, and water resources engineering*. American Society of Civil Engineers, Reston
Gates WCB (1997) The Hydro-Potential (HP) value: a rock classification technique for evaluation of the groundwater potential in fractured bedrock. Environ Eng Geosci 3(2):251–267
Gattinoni P, Scesi L, Francani V (2005) Tensore di permeabilità e direzione di flusso preferenziale in un ammasso roccioso fratturato Quaderni di Geologia Applicata 12(1):79–98
Gattinoni P, Papini M, Scesi L (2001) Geological risk in underground excavations. World Tunnel Congress AITES-ITA 2001 vol. 1:309–318
Gattinoni P, Scesi L (2004) Studio degli effetti della rugosità sulla circolazione idrica in un ammasso roccioso. Quaderni di Geologia Applicata 11(2):58–71
Gattinoni P, Scesi L (2007) Roughness control on hydraulic conductivity in fractures. Hydrogeol J, 15:201–211
Gattinoni P, Scesi L (2006) Analisi del rischio idrogeologico nelle gallerie in roccia a media profondità. Gallerie 79 69–79
Gattinoni P, Scesi L, Terrana S (2008) Hydrogeological risk analysis for tunneling in anisotropic rock masses. ITA-AITES World Tunnel Congress "Underground Facilities for Better Environment & Safety", September 19–25 2008 Agra, India

Gentier S, Billaux D (1989) Caracterisation en laboratoire de l'espace fissural d'une fracture. Proc of the International Symp on Rock at Great Depth, Balkema

Gentier S, Billaux D, van Vliet L (1989) Laboratory testing of the voids of a fracture. Rock Mech Rock Eng, 22:149–157

Ghosh A (1990) Role of radial cracks, free face and natural discontinuities of fragmentation from bench blasting. Ph.D. Thesis, University of Arizona

Gianotti F (1999) Geological and geomorphological evidence for the Aosta-Ranzola fault along the Aosta Valley. In: Fission track analysis: theory and application. Mem Sci Geol 51(2): 498–500

Gisotti G, Pazzagli G (2001) L'interazione tra opere in sotterraneo e falde idriche. Un recente caso di studio. In: Teuscher P, Colombo A (eds) AITES-ITA 2001, Progress in tunnelling after 2000, vol. 2. Patron Editore, Bologna

Goodman RE, Moye DG, Van Schalkwyk A, Javandel I (1965) Ground water inflow during tunnel driving. Eng Geol 2:39–56

Grasselli G, Egger P (2003) Constitutive law for the shear strength or rock joints based on three-dimensional surface parameters. Int J Rock Mech Min Sci 40:25–40

Gueguen Y, Dienes J (1989) Transport properties of rocks from statistics and percolations. J Int Assoc Math Geol 21:1–13

Hantush MS (1966) Analysis of data from pumping tests in anisotropic aquifers. J Geophys Res 71(2):421–426

Harbaugh AW, Banta ER, Hill MC and McDonald MG (2000) MODFLOW-2000, the U.S. Geological Survey modular ground-water model – User guide to modularization concepts and the Ground-Water Flow Process. U.S. Geological Survey Open-File Report 00–92

Hsieh PA (2002) Some thoughts on modelling flow in fractured rocks. Int Groundwater Modelling Center Newsletter 20

Huizar AR, Mendez GT, Madrid RR (1998) Patterns of groundwater hydrochemistry in Apan-Tochac sub-basin, Mexico. Hydrol Sci 43(5):669–685

Hung C, Evans DD (1985) A 3-dimensional computer model to simulate fluid flow and contaminant transport through a rock fracture system. NUREG/CR-4042, US Nuclear Regulatory Commission

Huyakorn PS, Lester BH, Faust CR (1983) Finite element techniques for modeling groundwater flow in fractured aquifers. Water Resour Res 19(4):1019–1035

Imray S (1955) Flow of liquids through cracker media. Bull of Water Res. Council Israel 5A(1):84

IPCC (2001) Impact, adaptation and vulnerability. Contribution of the working group II to the third assessment report of the Intergovernmental Panel on Climate Change (IPCC). McCarthy JJ, Canziani OF, Leary NA, Dokken DJ, White KS (eds), Cambridge University Press, Cambridge

Isherwood D (1979) Geoscience database handbook for modelling a nuclear waste repository vol. 1. NUREG/CR-0912VL, UCRL-52719, V1

Itasca (1999) UDEC, User's guide. Itasca Consulting Group Inc., Minneapolis

Ivanova V (1998) Geologic and stochastic modelling of fracture systems in rocks. Ph.D. Thesis, MIT, Cambridge.

Jacob CE, Lohman SW (1952) Nonsteady flow to a well of constant drawdown in an extensive aquifer. Trans Am Geophys Union 33(4):559–569

Jadoul F, Pozzi R, Pestrin S (1985) La sorgente Nossana: inquadramento geologico e idrologico. Riv Mus Sci Nat BG 9:129–140

Jankowski J, Shekarforoush S, Acworth RI (1998) Riverse ion-exchange in a deeply weathered porphyritic dacite fractured aquifer system, Yass, New South Wales, Australia. In: Arehart GB, Hulston JR (eds) Water-rock interaction. Balkema, Rotterdam

Jeong WC, Bruel D, Hicks T (1999) Modelling the influence of fault zone heterogeneity on groundwater flow and radionuclide transport. Proc. of Eurowaste '99, 5th European Commission Conference on Radioactive Waste Management and Disposal and Decommissioning, 15–18 November

Karlsrud K (2001) Control of water leakage when tunnelling under urban areas in the Oslo region. NFF Publication 12
Kawecki MW (2000) Transient flow to a horizontal water well. Ground Water, 38/6:842–850
Kazemi H (1969) Pressure transient analysis of naturally fractured reservoirs with uniform fracture distribution. Soc Pet Eng J 9:451–462
Kendorski FS, Mahtab MA (1976) Fracture patterns and anisotropy of San Manuel Quartz Monzanite. Bull Assoc Eng Geol 13:23–31
Kiraly L (1969) Anisotropie et hétérogénéité de la perméabilité dans les calcaires fissurés. Eclogae Geol Helv 62/2:613–619
Kiraly L, Mathey B, Tripet JP (1971) Fissuration et orientation des cavités souterraines: règion de la Grotte de Milandre (Jura tabulaire) (Cracking and orientation of the subsurface hollows: Grotte de Milandre (French Jura) area). Bull Soc Neuchateloise Sci Nat 94:99–114
Knutsson G, Olofsson B, Cesano D (1996) Prognosis of groundwater inflows and drawdown due to the construction of rock tunnels in heterogeneous media. Res Proj Rep Kungl Tekniska
Kraemer SR, Haitjema HM (1989) Regional modelling of fractured rock aquifers. In: Jousma G et al. (eds) Groundwater contamination: use of models in decision-making. Kluwer Academic Publishers, Dordrecht
Kruseman GP, de Ridder NA (1994) Analysis and evaluation of pumping test data. Second Edition (Completely Revised). ILRI publ. 47
Krutow-Mozgawa A (1988) Métamorphisme dans les sédiments riches en fer ou magnesium de la couverture des ophiolites piémontaises (mine de Servette, Val d'Aoste). Thèse de 3ème cycle, Université P. et M. Curie, Paris VI
La Pointe PL, Wallmann PC, Follin S (1996) Continuum modelling of fractured rock masses: is it usefull? In: Barla G (ed) Eurock 96, Balkema, Rotterdam
Labat D, Mangin A, Ababou R, (2002) Rainfall-runoff relations for karstic springs: multifractal analysis. J Hydrol 256(3–4):176–195
Lambe TW, Whitman RV (1969) Soil mechanics. John Wiley & Sons Inc, New York
Lapcevic PA, Novakowski KS, Cherry JA (1990) The characterization of two discrete horizontal fractures in shale Proc. Technology Transfer Conference. Ontario Ministry of Environment, Toronto
Laroque M, Manton O, Ackerer P, Razack M (1999) Determining karst transmissivities with inverse modeling and an equivalent porous media. Ground Water 37/6: 939–946
Lee CH, Farmer I (1993) Fluid flow in discontinuous rocks. Chapman & Hall, New York
Lee HS, Cho TF (2002) Hydraulic characteristics of rough fractures in linear flow under normal and shear load. Rock Mech Rock Eng 35(4):299–318
Lei S (1999) An analytical solution for steady flow into a tunnel. Ground Water 37(1):23–26
Liu J, Elsworth D, Brady BH, Muhlhaus HB (2000) Strain-dependent fluid flow defined through rock mass classification schemes. Rock Mech Rock Eng 33(2):75–92
Loew S (2002) Groundwater hydraulics and environmental impacts of tunnels in crystalline rocks. Meccanica e Ingegneria delle rocce Torino
Long JCS (1983) A model for steady fluid flow in random three dimensional networks of disk shaped fractures. Water Resour Res 21(8):1105–1115
Long JCS, Witherspoon PA (1985) The relationship of the degree of interconnaction to permeability of fracture networks. J Geophys Res 90(B4):3087–3098
Louis C (1967) Etude des écoulements d'eau dans les roches fissurées et de leur influence sur la stabilité des massifs rocheux. Bull de la Direction des Etudes et Recherches, Serie A Nucléaire, Hydraulique, Termique 3:5–132
Louis C (1974) Introduction à l'hydraulique des roches. Bur Rech Geol Min 4/3:283–356
Ma T, Wang Y, Guo Q (2004) Response of a carbonate aquifer to climate change in northern China: a case study at the Shentou karst springs. J Hydrol 297:274–284
Machado LI, Silva F, Duias R, Laiginhas C (2001) GIS technologies applied to modelling fluid circulation in carbonate massifs – The Estremos anticline (Portugal). Geospatial World, Atlanta

Manev G, Avramova-Tacheva E (1970) On the valuation of strenght and resistance condition of the rocks in natural rock massif. Proc. 2nd Cong. Int. Soc. Rock. Mech., Belgrade, pp 59–64
Martin S, Rebay G, Kienast JR, Mevel C (2008) An eclogitized, oceanic paleohydrothermal field from the St.Marcel Valley (Italian Western Alps). OFIOLITI 33:1–15, ISSN: 0391-2612
Martin S, Tartarotti P (1989) Polyphase HP metamorphism in the ophiolitic glaucophanites of the lower St. Marcel Valley (Aosta, Italy). Ofioliti 14(3):135–156
McCaffrey MA, Adinolfi AM (2003) Evaluating groundwater behavior in jointed rock subject to dewatering. 39th US Rock Mechanics Symposium 21–22 July
McDonald MG, Harbaugh AW (1988) A modular three dimensional finite difference groundwater flow model. U.S. Geological Survey Techniques of Water Resources Investigations, vol. 6
Meenzel L, Burger G (2002) Climate change scenarios and runoff response in the Mulde catchment (southern Elbe, Germany). J Hydrol 267:53–64
Meyer T, Einstein HH (2002) Geologic stochastic modeling and connectivity assessment of fracture systems in the Boston Area. Rock Mech Rock Eng 35(1):23–44
Min KB, Jing L, Stephansson O (2004) Determining the equivalent permeability tensor for fractured rock masses using a stochastic REV approach: method and application to the field data from Sellafield, UK. Hydrogeol J 12(5):497–510
Mojitabai N, Centintas A, Farmer IW, Savely J (1989) In-place and excaveted block size distribution. Proc. 30th US Symposium on Rock Mechanics, West Virginia University
Molinero J, Samper J, Juanes R (2002) Numerical modelling of the transient hydrogeological response produced by tunnel construction in fractured bedrocks. Eng Geol 64:369–386
Moutsopoulos KN, Konstantinidis AA, Meladiotis ID, Tzimopoulos CD, Aifantis EC (2001) Hydraulic and contaminant transport in multiple porosity media. Transport Porous Media 42:265–292
Negi GCS, Joshi V (2004) Rainfall and spring discharge patterns in two small drainage catchments in the Western Himalayan Mountains, India. The Environmentalist 24:19–28
Neuman SP, Walter GR, Bentley HW, Ward JJ, Gonzalez DD (1984) Determination of horizontal anisotropy with three wells. Ground Water 22(1):66–72
Noussan É (1972) Les fontaines colorées. Bull Soc Flore valdôtaine 26:32–35
Oraseanu I, Mather J (2000) Karst hydrogeology and origin of thermal waters in the Codru Moma Mountains, Romania. Hydrogeol J 8(4):379–389
Orlando BM, Burton I (2003) Change: adaptation of water resources management to climate change. IUCN, Gland
Oxtobee JPA, Novakowski KS (2003) Ground water/surface water interaction in a fractured rock aquifer. Ground Water Genuary
Pahl PJ (1981) Estimating the mean length of discontinuity trace. Int J Rock Mech Min Sci & Geom Abstr 18:221–228
Palmstron A (1982) The volumetric joint count: a useful and simple measure of the degree of rock mass jointing Proc 4th Cong Int Assoc of Eng Geol 5:221–228
Papadopulos IS (1965) Nonsteady flow to a well in a finite anisotropic aquifer. International Association of Scientific Hydrogeology Symposium. Am Water Resour Assoc Proc 4:157–168
Papini M, Scesi L, Bianchi B (1994) Studi finalizzati alla previsione delle venute d'acqua in galleria. Costruzioni april
Park K-H, Owatsiriwong A, Lee G-G (2008) Analytical solution for steady-state groundwater inflow into a drained circular tunnel in a semi-infinite aquifer: a revisit. Tunnelling and Underground Space Technology 23:206–209
Picarelli L, Petrazzuoli SM, Warren CD (2002) Interazione tra gallerie e versanti. Meccanica e Ingegneria delle Rocce MIR
Piggott AR (1990) Analytical and experimental studies of rock fracture hydraulics. Ph.D. Thesis at Pennsylvania State University, Pennsylvania
Poulton MM, Mojitabai N, Farmer IW (1990) Scale invariant behavior of massive and fragmented rock. Int J Rock Mech Min Sci & Geomech Abstr 27:219–221
Priest SD, Hudson JA (1976) Discontinuity spacings in rock. Int J Rock Mech Min Sci & Geomech Abstr 13:135–148

Qian J, Zhan H, Wu Y, Li F, Wang J (2006) Fractured-karst spring-flow protections: a case study in Jinan, China Hydrogeol J (2006) 14:1192–1205

Rabinovitch A, Bahat D, Melamed Z (1999) A note on joint spacing. Rock Mech Rock Eng 32:71–75

Ramsay JG, Huber MI (1987) The techniques of modern structural geology. Academic Press, London

Rasmussen TC (1988) Fluid flow and solute transport through three-dimensional networks of variably saturated discrete fractures. Ph.D. Dissertation, University of Arizona

Raven KG, Gale JE (1976) Evaluation of structural and groundwater conditions in underground mines and excavations: subsurface containment of solid radioactive wastes. Geol Survey of Canada Progress Report EMR/JSC-RW

Regione autonoma Valle d'Aosta (2006) Cambiamenti climatici in Valle d'Aosta: opportunità e strategie di risposta. Società metereologica subalpina, Torino

Reuter E, Kopp B, Lemke S (2000) Hallandsas Tunnel. Waterproofing system with a 4 mm thick plastic membrane. Tunnel 6:39–45.

Ribacchi R, Graziani A, Boldini D (2002) Previsione degli afflussi d'acqua in galleria e influenza sull'ambiente. Meccanica e Ingegneria delle rocce, MIR, Torino

Robinson PC (1982) Connectivity of fracture system – A percolation theory approach, Theoretical Physics Division, AERE Arwell. DOE report no. DOE/RW/81.028, march

Romana M (1985) New adjustment ratings for application of Bieniawski classification to slopes. Int. Symp. on the role of rock mechanics ISRM, Zacatecas

Rossi S, Ranfagni L, Biancalani P, Calzolai L (2001) Geological and hydrogeological analysis in large scale tunnelling and impact forecasting on groundwater resources: Bologna-Florence High Speed Railway (Italy). World Tunnel Congress AITES-ITA 2001 1:649–656

Rouleau A, Gale JE (1985) Statistical characterisation of the fracture system in the Stripa Granite, Sweden. Int J Rock Mech Min Sci & Geomech Abstr 22:353–367

Rowe RK, Booker JR (1990) Contaminant migration in a regular two or three dimensional fractured network: reactive contaminants. Int J Numer Anal Methods Geomech 14:401–425

Samardzioska T, Popov V (2005) Numerical comparison of the equivalent continuum, non homogeneous and dual porosity models for flow and transport in fractured porous media. Adv Water Resour 28(3):235–255

Sauro U (1993) Human impact on the karst of the Venetian forealps, Italy. Environ Geol 21(3): 115–121

Scanlon BR, Mace RE, Barret ME, Smith B (2003) Can we simulate regional groundwater flow in a karst system using equivalent porous media models? Case study, Barton Springs Edwards aquifer, USA. J Hydrol 276:137–158

Scesi L (1993) Circolazione idrica in ammassi rocciosi cristallini e opere in sotterraneo Le Strade marzo-aprile

Scesi L, Papini M, Gattinoni P (2006) Geologia Applicata. Il rilevamento geologico-tecnico. Casa Editrice Ambrosiana, Milano

Scesi L, Saibene L (1989) Verifica sperimentale della validità del rilevamento geologico-strutturale per fini applicativi. Le Strade XCI:1262

Shante VKS, Kirkpatrick S (1971) Introduction to percolation theory. Adv Phys 20:325–357

Shapiro A, Andersson J (1983) Steady state fluid response in fractured rock: a boundary element solution for a coupled, discrete fracture continuum model. Water Resour Res 19(4):959–969

Snow DT (1969) Anisotropic permeability of fractured media. Water Resour Res 5:1273–1289

Snow DT (1970) The frequency and apertures of fractured rock. Int J Rock Mech Min Sci 7:23–40

St. Martin de La Motte (Comte de) (1784–1785) Sur la fontaine verte de Saint Marcel dans la Vallée d'Aoste. *Mémoires de Mathématiques et de Physique tirés des régistres de l'Académie Royale des Sciences*, Turin.

Sudicky EA (1990) The Laplace transform Galerkin technique for efficient time-continuous solution of solute transport in double-porosity media. Geoderma 46:209–232

Tartarotti P (1988) Le ofioliti piemontesi nella media e bassa valle di St. Marcel (Aosta) Ph.D. Thesis, Università di Padova

Tartarotti P, Martin S, Polino R (1986) Geological data about the ophiolitic sequences in the St. Marcel valley (Aosta Valley). Ofioliti 11:343–346

Therrien R (1992) Three dimensional analysis of variably-satured flow and solute transport in discretely-fractured porous media, Ph.D. Thesis, University of Waterloo

Thiel K (1989) Rock mechanics in hydroengineering. Elsevier, New York

Tumiati S, Godard G, Masciocchi N, Martin S, Monticelli D (2007) Environmental factors controlling the precipitation of Cu-bearing hydrotalcite-like compounds from mine waters. The case of the "Eve verda" spring (Aosta Valley, Italy). Eur J Mineral 20(1):73–94

Turcotte DL (1986) Fractal and fragmentation. J Geophys Res 92:1921–1926

Tweed SO, Weaver TR, Cartwright I (2005) Distinguishing groundwater flow paths in different fractured-rock aquifers using groundwater chemistry: dandenong ranger, southeast Australia. Hydrogeol J 13:771–786

Veneziano D (1978) Probabilistic model of joints in rock. unpublished manuscript, MIT, Cambridge

Vigna B (2001) Gli acquiferi carsici. Quaderni didattici SSI 12:3–48

Villaescusa E, (1993) Statistical modelling of rock jointing. In: Li & Lo (eds) Probabilistic methods in geotechnical engineering. Balkema, Rotterdam

Walsh JB (1981) Effects of pore pressure and confining pressure on fracture permeability. Int J Rock Mech Min Sci & Geomech Abstr 18:429–435

Walsh JB, Brace WF (1984) The effects of pressure on porosity and the transport properties of rock. J Geophyf Res 80:9425–9431

Warren JE, Root PJ (1963) The behavior of naturally fractured reservoirs. Soc Pet Eng J Trans ASME 228:245–255

Weeks EP (1969) Determining the ratio of horizontal to vertical permeability by aquifer-test analysis. Water Resour Res 5:196–214

Witherspoon PA, Wang JSY, Iwai K, Gale JE (1980) Validity of cubic law for fluid flow in a deformable rock fracture. Water Resour Res 16(6):1016–1024

Woldeamlak ST, Batelaan O, De Smedt F (2007) Effects of climate change on the groundwater system in the Grote-Nete catchment, Belgium. Hydrogeol J 15:891–901

Wolkersdorfer C, Bowell R (2005) Contemporary reviews of mine water studies in Europe, Part 3. Mine Water Environ 24:58–76

Yang ZY, Lo SC, Di CC (2001) Reassessing the joint roughness coefficient (JRC) estimation using K2. Rock Mech Rock Eng 34(3):243–251

Index