

SOME REFERENCES of published papers in geology, engineering geology, rock mechanics and rock engineering

1. Aagaard B., Grøv E. and Blindheim O.T. (1997): Sprayed concrete as part of rock support systems for adverse rock conditions. Int. Symp. on Rock Support, Applied solutions for underground structures. Lillehammer, Norway.
2. Aagaard B. and Blindheim O.T. (1999): Crossing of exceptionally poor weakness zones in three subsea tunnels, Norway. Proc. ITA World Tunnel Congress '99, Oslo, 10 p.
3. Aasen O., Ödegård H. and Palmström A. (2013): Planning of pressurized headrace tunnel in Albania. In Norwegian hydropower tunnelling II. Publication no. 22. Norwegian Tunnelling Society, 2013, pp. 21 – 27.
4. Abbiss C.P. (1979): A comparison of the stiffness of chalk at Mundford from a seismic survey and large-scale tank test. Géotechnique, 29, pp. 461-468.
5. Abelo B. and Schlittler F. (1973): Additional power for the Bolivian Central System. Water Power, April, 1973, pp. 121-128.
6. Aglawe J. P. (1998): Unstable and Violent Failure Around Underground Openings in Highly Stressed Ground. Ph.D. thesis, Department of Mining Engineering, Queen's University, Kingston, Canada. In Progress.
7. Aitcin P.C., Ballivy G. and Parizeau R. (1984): The use of condensed silica fume in grouts. Innovative Cement Grouting, ACI Publication SP-83, 1984, pp. 1-18.
8. Aldrich M.J. (1969): Pore pressure effects on Berea sandstone subjected to experimental deformation. Geol. Soc. Amer. Bull., Vol. 80, No. 8, pp. 1577-1586.
9. Aleman, V.P. (1983): Prediction of cutting rates for boom type road-headers, Tunnels and Tunnelling, pp. 23-25.
10. Allen H. and Johnson A.W. (1936): The results of tests to determine the expansive properties of soils. Proc. Highway Res. Board, U.S.A. 16,220.
11. Almén K-E., Andersson J-E., Carlsson L., Hansson K. and Larsson N-A. (1986): Hydraulic testing in crystalline rock. A comparative study of single-hole test methods. SKB Technical report 86-27. Svensk Kärnbränslehantering AB.
12. Alonso E. and Berdugo I.R. (2005): Expansive behaviour of sulphate-bearing clays. Proc. Int. Conf. Problematic Soils. Famagusta, 2005.
13. Alonso E., Berdugo I.R. and Tarragò R.A. (2007): Tunnelling in sulphate claystone. Proc. ECSMGE, Madrid.
14. Alpan I. (1967): An Apparatus for Measuring the Swelling Pressure in Expansive Soils. Proc. 4th Int. Conf. on Soil Mech. and Found. Eng. vol.1, p. 3.
15. Amadei B. and Goodman R.E. (1981): A 3-D constitutive relation for fractured rock masses. Proc. Int. Symp. on the Mechanical behaviour of structured media. Ottawa. Canada. Part B. 1981, pp. 267-286.

16. Amadei B. (1988): Strength of a regularly jointed rock mass under biaxial and axisymmetric loading conditions. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, Vol. 25, No. 1, pp. 3 - 13.
17. Amadei B. and Stephansson O. (1997): *Rock Stress and Its Measurement*. Chapman & Hall, London, 1st edn.
18. Amadei B., Wibowo J., Sture S. and Price R.H. (1998): Applicability of existing models to predict the behaviour of replicas of natural fractures of welded tuff under different boundary conditions. *Geotech. Geo. Eng.* 1998; 16 (2): pp. 79-128.
19. Amann F., Kaiser P.K. and Steiner W. (2010): Triggering swelling potential of anhydrite clay rocks by brittle failure processes. *Eurock 2010*, Lausanne, pp. 339–342.
20. American Iron and Steel Institute (1981): *Steel Penstocks and Tunnel Liners. Steel Plate Engineering Data*, Volume 4, 1981.
21. American Society of Civil Engineers (1973): Use of shotcrete for underground structural support. Proceedings of the Engineering Foundation Conference held at South Berwick, Maine, USA. 465 p.
22. Amos A.J., Granero Hernandez A. and R.J. Rocca. (1981): Problemas de meteorizacion del geneis en la Presa Principal del complejo hidroeléctrico Río Grande I. Proc. VIII Congr. Geol. Arg. Actas 2, pp. 123-135.
23. Amberg W. and Christini F. (1986): The new Austrian tunnelling method in railway tunnel construction. *Rassegna dei lavori pubblici*, No 5, pp. 241/1 - 252/1.
24. American Geological Institute (1962): *Dictionary of geological terms*. Dolphin Reference Books, 545 p.
25. Amstutz E. (1970): Buckling of pressure shaft and tunnel linings. *Water Power*, November 1970, pp. 391-399.
26. Anagnostou G. and Cantieni L. (2007): Design and analysis of yielding support in squeezing ground. Proceedings of 11th ISRM congress, The Second Half-Century of Rock Mechanics, July 9 – 13, 2007, Lisbon, Portugal, 4p.
27. Anagnostou G., Pimentel E. and Serafeimidis K. (2010): Swelling of sulfatic claystones – some fundamental questions and their practical relevance. Proc. 59th Geomechanics Colloquium, Geomechanics and tunneling 12 p.
28. Andersson C. and Söderhäll J. (2001): Rock mechanical conditions at the Äspö HRL. A study of the correlation between geology, tunnel maintenance and tunnel shape. Tech. Rep. SKB R 01-53, Swedish Nuclear Fuel and Waste Management Company, Stockholm.
29. Andersson C. (2007): Rock mass response to coupled mechanical thermal loading Äspö pillar stability experiment, Sweden. Doctoral thesis. Royal Institute of Technology (KTH), Stockholm.
30. Anderson J.M., Manning R.F. and Snee C.P.M. (1997): Improving Safety in Sprayed Concrete Tunnel Linings by Good Construction and Through Testing. Proceedings, Tunnelling '97 Conference, London, 1997, pp. 353-361.
31. Anderson J.M. (1997): Worldwide research points to the need for new approaches to control tunnelling risks. In Proc. Tunnelling Under Difficult Ground Conditions, Basel.

32. Andersson J. and Ljunggren C. (1997): A geostatistical approach to evaluate differences in results between hydraulic fracturing and overcoring. In Proc. Int. Symp. on Rock Stress, Kumamoto (Ed. K. Sugawara and Y. Obara), pp. 223–227. A.A. Balkema, Rotterdam.
33. Andersson H. (1998): Chemical rock grouting. An experimental study on polyurethane foams. Ph. D. thesis, Department of geotechnical engineering, Chalmers University of technology, Sweden.
34. Andersson H. and Janson T. (1998): Grouting knowledge in Sweden — A survey. Proc. Underground Construction in Modern Infrastructure, Stockholm. Pp 375-380, ISBN 90 5410-964-5.
35. Andersson J., Ström A., Svedar C., Almén K.-E. and Ericsson L. E. (2000): What requirements does the kbs-3 repository make on the host rock? Geoscientific suitability indicators and criteria for siting and site evaluation. Technical Report TR-00-12, Swedish Nuclear Fuel and Waste Management Company, Stockholm, Sweden.
36. Andersson J., Christiansson R. and Hudson J.A. (2002): Site Investigations Strategy for Rock Mechanics Site Descriptive Model. Report TR-02-01. Svensk Kärnbränslehantering AB (SKB), Stockholm, Sweden
37. Anon (1970): Using a remotely controlled borehole camera. *Ground Engineering*, 3 (5), pp. 20-21.
38. Anon (1977): The logging of rock cores for engineering purposes: Engineering Group Working Party Report. *Q.J. Eng. Geol.*, 10 (1), pp. 45-51.
39. Anon. (1977). Geological Society Engineering Group Working Party Report. Description of rock masses for engineering purposes. *Q. J. Engng Geol.* 10, pp. 355-388.
40. Araghi M.S., Samani F.B., Goudarzi M.T. (2006): A Proposal for the Modification of RQD (MRQD). Proceeding of 4th Asian Rock Mechanics Symposium, Rock Mechanics in underground construction. ISRM International Symposium. ASTM 2004. Standard Test Method for Determining Rock Quality Designation (RQD) of Rock Core. Designation: D 6032 – 02.
41. Arjang B. (1989): Pre-mining stresses at some hard-rock mines in the Canadian Sheild. In Proc. 30th U.S. Symp. Rock Mech., Morgantown, pp. 545–551. A.A. Balkema, Rotterdam.
42. Arjang B. and Herget G. (1997): In situ ground stresses in the Canadian hardrock mines: an update. *Int. J. Rock Mech. Min. Sci.*, **34**(3-4):652. Paper No. 015.
43. Aristorenas, G. (1992): Time Dependent Behavior of Tunnels Excavated in Shale. Ph.D. Thesis, MIT, Cambridge, Massachusetts.
44. Arora V.K. (1987): Strength and deformation behavior of jointed rock. Ph.D. thesis, Indian Institute of Technology, Delhi, India, 1987.
45. Arthur H.G. and Walker J.J. (1970): New design criteria for U.S.S.R. penstocks. Proc. A.S.C.E., Journal of the Power Division, January 1970, pp. 129-143.
46. Ashenden D.P. (1980): Geologic factors affecting failure of the Dorchester tunnel, Boston. Geotechnology Proceedings, University of Massachusetts, March, 1980, pp. 213-219.
47. Association of Geotechnical Specialists (1994): Validation and use of geotechnical software. AGS guide, version 1.0. Available from AGS, 39 Upper Elmers End Road, Beckenham, Kent, BR3 3QY

48. Association of Ground Investigation Specialists (AGIS) (1979): Specification for ground investigations. *Ground Engineering*, 12 (5), pp. 56-57.
49. Atkinson R.H. (coordinator) (1978): Suggested methods for determining hardness and abrasiveness of rocks. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, Vol. 15, No.3, pp. 89-97.
50. Attewell P.B. and Sandford M.R. (1974): Intrinsic shear strength of a brittle, anisotropic rock – 1. Experimental and mechanical interpretation. *Intnl. J. Rock Mech., Min. Sci.*, Vol. 11, pp. 423-430.
51. Austrian Concrete Society (1990): Guidelines on shotcrete Part 1 – general applications. 35 p.
52. Aubertin M. and Simon R. (1997): A damage initiation criterion for low porosity rocks. *Int. J. Rock Mech. Min. Sci.*, 34 (3-4), Paper 017.
53. Aufmuth R.E. (1974): Site engineering indexing of rock: Field testing and instrumentation of rock. American Society for Testing and Materials, Special Technical Publication, No. 554, pp. 81-99.
54. Aydan, Ö, (1989): The stabilisation of rock engineering structures by rockbolts. Ph.D. Thesis, Nagoya University, 240 p.
55. Aydan Ö. (1994): Rock reinforcement and Support, Chapter 7, In: *Introduction to Rock Mechanics*, V.S. Vutukuri, K. Katsuyama (eds.), Industrial Publishing and Consulting Inc., Tokyo, pp. 193-248.
56. Aydan Ö. (2000): A new stress inference method for the stress state of Earth's crust and its application. *Yerbilimleri*. 22, 223-236. (in Turkish).
57. Aydan, Ö. (2014): The state of art on large cavern design for underground powerhouses and long-term issues. The second Volume of Encyclopedia on Renewable Energy, John Wiley and Sons
58. Aydan Ö., Shimizu Y. and Ichikawa Y. (1989): The Effective Failure Modes and Stability of Slopes in Rock Mass with Two Discontinuity Sets. *Rock Mechanics and Rock Engineering*, 22(3), pp. 163--188.
59. Aydan Ö., Akagi T. and Kawamoto T. (1993): The squeezing potential of rocks around tunnels; theory and prediction. *Rock Mech. Rock Engrn.*, No. 26, pp. 137 - 163.
60. Aydan Ö. and Kawamoto T. (1992): The stability of slopes and underground openings against flexural toppling and their stabilisation. *Rock Mechanics and Rock Engineering*, 25(3), 143-165.
61. Aydan Ö., Ulusay, R. and Kawamoto T. (1997): Assessment of rock mass strength for underground excavations. In: Proc. of the 36th US Rock Mechanics Symposium, pp.777-786.
62. Aydan Ö. and Dalgıç S., (1998): Prediction of deformation behaviour of 3 lanes Bolu tunnels through squeezing rocks of North Anatolian Fault Zone (NAFZ). Proceedings of the regional symposium on sedimentary rock engineering, Taipei, pp. 228 – 33.
63. Aydan Ö. and Kawamoto T. (2001): The stability assessment of a large underground opening at great depth. 17th Int. Min. Congress and Exhibition of Turkey, IMCET 2001, Ankara, Vol.1, 277-288.
64. Aydan Ö., Geniş M. and Tokashiki N. (2009): The stability assessment of karstic caves beneath Gushikawa Castle remains (Japan). *EUROCK2009 ISRM Regional Symposium – Rock*

Engineering in Diffucult Ground Conditions-Soft Rocks and Karst. Vrjklan, I. (ed.), Dubrovnik, Croatia, pp.449-454.

65. Aydan Ö., Ohta Y., Geniş M., Tokashiki N. and Ohkubo K. (2010): Response and stability of underground structures in rock mass during earthquakes. Rock Mechanics and Rock Engineering, Vol.43, No.6, pp. 857-875.
66. Aydan Ö., Ohta Y., Daido M., Kumsar H., Genis M., Tokashiki N., Ito T. and Amini, M. (2011): Chapter 15: Earthquakes as a rock dynamic problem and their effects on rock engineering structures. Advances in Rock Dynamics and Applications, Editors Y. Zhou and J. Zhao, CRC Press, Taylor and Francis Group, 341-422.
67. Aydan Ö. and Tokashiki N. (2011): A comparative study on the applicability of analytical stability assessment methods with numerical methods for shallow natural underground openings. The 13th International Conference of the International Association for Computer Methods and Advances in Geomechanics, Melbourne, Australia, pp. 964-969.
68. Aydan Ö., Tokashiki N. and Geniş M. (2011): Stability assesment of Himeyuri monument and adjacent karstic cave. In: Proc. of the KAYAMEK'2011-Xth Regional Rock Mechanics Symposium. Kulaksız S. and Tuncay E. (eds.), Ankara, Turkey, pp.39-46.
69. Aydan Ö., Geniş M. and Tokashiki N. (2012): Some considerations on yield (failure) criteria in rock mechanics. In: 46th US Rock Mechanics/Geomechanics Symp., Chicago, USA, ARMA 12-640 (full paper on CD).
70. Axelsson M. (2005): Mechanical tests on a new non-cementitious grout, silica sol: A laboratory study of the material characteristics. Tunnelling and Underground Space Technology. Available online DOI: 10.1016/j.tust.2005.08.011.
71. Axelsson M. and Gustafson G. (2005): A robust method to determine the shear strength of cement- based injection grouting in the field.
72. Axelsson M. (2006): Strength criteria on grouting agents for hard rock, Laboratory studies performed on gelling liquid and cementitious grout. Licentiate thesis, Chalmers University of Technology, Division of GeoEngineering. Goteborg.
73. Azzoni A., La Barbera G. and Zaninetti A. (1995): Analysis and prediction of rockfalls using a mathematical model. International Journal of Rock Mechanics and Mining Science and Geomechanics Abstracts. Vol. 32., No. 7. pp. 709-724.
74. Badger T.C. and Lowell S. (1992): Rockfall Control Washington State. In Rockfall Prediction and Control and Landslide Case Histories, Transportation Research Record, National Research Council, Washington, No 1342, pp. 14-19.
75. Backer L. and Blindheim O.T. (1999): The Oslofjord subsea road tunnel. Crossing of a weakness zone under high water pressure by freezing. Proc. ITA World Tunnel Congress '99, Oslo, 10 p. Also published in Tunnels & Tunnelling
76. Baecher G.B., Lanney N.A. and Einstein H.H. (1977): Rock joint properties and sampling. Proc. 19th U.S. Symp. on Rock Mechanics, Keystone.
77. Baecher G.S. and Lanney N.A. (1978): Trace length biases in joint surveys. 19th US Symp. on Rock Mechanics, Stateline, Nevada, pp. 56-65.

78. Baines J.A., Newman V.G., Hannah I.W., Douglas T.H. and Carlyle W.J. (1983): Dinorwig pumped storage scheme. Proc. Instn. Civil Eng., Part 1, Vol. 74, November 1983, Paper No. 8739, pp. 635-718.
79. Bajzelj U., Likar J., Zigman F., Subelj A. and Spek S. (1992): Geotechnical analyses of the mining method using long cable bolts. In Rock support in mining and underground construction, proc. int. symp. on rock support, Sudbury, (eds. P.K. Kaiser and D.R. McCreath), pp. 393-402. Rotterdam: Balkema.
80. Baker A. J. C. and James A. N. (1990): Three Valleys Water Committee; tunnel connection to the Thames Water reservoirs. Proceedings of the Institution of Civil Engineers – Part 1, 88, pp. 929 - 954.
81. Baker B.R., Gessner K., Holden E.-J. and Squelch A.P. (2008): Automatic detection of anisotropic features on rock surfaces. *Geosphere*, (4)2, 418-428.
82. Baker D.G. (1991): Wahleach power tunnel monitoring. Proc. 3rd Int. Symp. on Field Measurements in Geomechanics, Oslo, Norway.
83. Baker, V.R. (1975): Urban Geology of Boulder Colorado. Progress Report, Environmental Geology, Vol.1, pp. 75-88.
84. Baker W. H., Cording E. J. and MacPherson H. H. (1983): Compacting grouting to control ground movements during tunnelling. *Underground Space*, Volume 7, 1983, pp. 205 - 212
85. Ballard R.F., Stokoe K.H. and McLemore R. (1983): Proposed test methods for crosshole seismic testing. *ASTM Geotech. Testing J.*, 6, pp. 210-219.
86. Balmer G. (1952): A general analytical solution for Mohr's envelope. *Am. Soc. Test. Mat.* 52, pp. 1260-1271.
87. Bandis S.C. (1980): Experimental studies of scale effects on shear strength, and deformation of rock joints. Ph.D. thesis, University of Leeds.
88. Bandis S.C. (1990): Mechanical properties of rock joints. In Proc. Int. Soc. Rock Mech. symp. on rock joints, Loen, Norway, (eds N. Barton and O. Stephansson), pp. 125-140. Rotterdam: Balkema.
89. Barker R.D. and Worthington P.F. (1972): Location of disused mineshafts by geophysical methods. *Civil Engng and Publ. Wks Rev.*, 67 (788), pp. 275-276.
90. Barkey H. and Palmström A. (1970): Some results of an engineering geological investigation in the Breiskar discharge tunnel, Norway. First Int. Congr. of the International Association of Engineering Geology (IAEG), Paris 1970, pp. 1160 – 1171.
91. Barla G., Sharp J.C. and Rabagliati (1993): Stress strength and deformability assessment for the design of large storage caverns in a weak Eocene chalk. Proc. MIR '90, 3rd Conf. on Meccanica e Ingegneria delle Rocce (Mechanics and Engineering of Rocks), Torino, 26—30 Nov., pp. 22-1 - 22-21.
92. Barla G. and Barla M. (2008): Innovative tunnelling construction methods in squeezing rock. In: What Future for the Infrastructure? Innovation & Sustainable Development, Patron Editore, pp. 103-119.
93. Barla M. and Barla G. (2001): Adoption of triaxial testing for the study of swelling behaviour in tunnels Proceedings of XV ICSMGE, Istanbul, 27-31 August 2001.

94. Barla M. (2008): Numerical simulation of the swelling behaviour around tunnels based on special triaxial tests. *Tunnelling and underground space technology*. Vol. 23/5 pp.508-521.
95. Barr M.V. (1977): Downhole instrumentation — a review for tunnelling ground investigation. CIRIA Technical Note 090, Construction Industry Research and Information Association, London.
96. Barr M.V. and Hocking G. (1976): Borehole structural logging employing a pneumatically inflatable impression packer. *Proc. Symp. on Exploration for Rock Engineering*, Johannesburg.
97. Barton, N., (1972): A model study of rock-joint deformation. *Int. Jour. Rock Mech. Min. Sci. and Geomech. Abstr.* 9(5), 579 - 602.
98. Barton N. (1973a): Review of a new shear-strength criterion for rock joints. *Engineering Geology*, 7, pp. 287-332.
99. Barton N. (1973b): A review of the shear strength of filled discontinuities. *Proc. Conf. on Fjellsprengningsteknikk/Bergmekanikk*, Tapir, Trondheim, 38 p. (also in Norwegian Geotechnical Institute, Publ. No. 105)
100. Barton N. (1974): A review of the shear strength of filled discontinuities in rock. *Norwegian Geotech. Inst. Publ. No. 105*. Oslo: Norwegian Geotech. Inst.
101. Barton N. (1976): The shear strength of rock and rock joints. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, Vol. 13, No. 9, pp. 255-279.
102. Barton N. (1976). Recent Experiences with the Q-system of Tunnel Support Design. *Proc. Symp. on Exploration for Rock Engineering*, Johannesburg, pp. 107-117.
103. Barton N. (1981): Hydraulic fracturing to estimate minimum stress and rockmass stability at a pumped hydro project. *Workshop on Hydraulic Fracturing Stress Measurements*, December 1981, Monterey, California, U.S. Geotechnical Survey, Menlo Park, California, pp. 167-180.
104. Barton N. (1982): Modelling rock joint behaviour from in situ block tests: Implications for nuclear waste repository design. *Office of Nuclear Waste Isolation*, Columbus, OH, 96p., ONWI-308.
105. Barton N. (1983): Application of Q-system, index tests to estimate shear strength and deformability of rock masses. In: *Proceedings of international symposium on engineering geology underground construction*, vol. 1(II). Lisbon, p.51 – 70.
106. Barton N. (1985): Rock mass deformation phenomena. *FBG Proceedings*, Paper No. 32, Tapir, Trondheim, Norway (in Norwegian).
107. Barton N. (1987): Predicting the behaviour of underground openings in rock. *4th Manual Rocha Memorial Lecture*, Lisbon (in Norwegian Geotechnical Institute, Publ. No. 172) 21 p.
108. Barton, N. (1989): Cavern design for Hong Kong rocks. *Proc. Rock Cavern Seminar – Hong Kong* (eds A.W. Malone and P.G.D. Whiteside), pp. 179-202. London: Institution of Mining and Metallurgy
109. Barton N. (1990): Cavern design for Hong Kong rocks. *Norwegian Geotechnical Institute*, Publ.no. 180, pp. 1-24.

110. Barton N. (1990): Scale effects or sampling bias? Proc. Int. Workshop Scale Effects in Rock Masses, Balkema Publ., Rotterdam, pp. 31-55.
111. Barton N. (1991): Geotechnical design. World Tunnelling, November 1991, 6 p.
112. Barton N. (1993): Physical and discrete element models of excavation and failure in jointed rock. Keynote lecture presented at ISRM Int. Symp. on Assessment and Prevention of failure Phenomena in Rock Engineering, Istanbul, Turkey.
113. Barton N. (1993): Tunnel support using NMT, based on core logging (in Norwegian). Norwegian annual national rock excavation conference (Fjellsprengningsteknikk - bergmekanikk – geoteknikk), pp. 28.1 - 28.14.
114. Barton N. (1995): The influence of joint properties in modelling jointed rock masses. Keynote lecture, Proc. 8th ISRM Congr., Tokyo, pp. 1023 -1032, Balkema, Rotterdam.
115. Barton N. (1999): TBM performance estimation in rock using Q_{TBM} . Tunnels & Tunnelling, September 1999, pp. 30-34.
116. Barton N. (2002): Some new Q-value correlations to assist in site characterization and tunnel design. Int. J. Rock Mech. & Min. Sci. nr. 39, pp. 185-216.
117. Barton N., Lien R. and Lunde J. (1974): Analysis of rock mass quality and support practice in tunnelling and a guide to estimating support requirements. Internal Report No. 106, Norwegian Geotechnical Institute, Oslo.
118. Barton N., Lien R. and Lunde J. (1974): Engineering classification of rock masses for the design of tunnel support. Rock Mech., 6(4), pp. 189-236.
119. Barton N., Lien R. and Lunde J. (1975): Estimation of support requirements for underground excavations. Proc. Sixteenth Symp. on Rock Mechanics, Minneapolis, pp. 163-177.
120. Barton N., Lien R. and Lunde J. (1977): Estimation of support requirements for underground excavation. Symposium on Rock Mechanics, 16. Minneapolis, Minn., Proceedings, pp. 163-177.
121. Barton N. and Choubey V. (1977): The shear strength of rock joints in theory and practice. Rock Mechanics, No. 1/2, pp. 1-54, (also in Norwegian Geotechnical Institute, Publ. No. 119)
122. Barton N., Lien R. and Lunde J. (1980): Application of Q-system in design decisions concerning dimensions and appropriate support for underground installations. Proc. Int. Conf. Subsurface Space, Pergamon Press, pp. 553-561.
123. Barton N. and Bandis S. (1980): Some effects of Scale on the shear strength of joints. Technical note. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol 17, pp. 69-73.
124. Barton N. and Bandis S.C. (1982): Effects of block size on the shear behaviour of jointed rock. 23rd U.S. symp. on rock mechanics, Berkeley, pp. 739-760.
125. Barton, N. and Bandis, S.C. (1990): Review of predictive capabilities of JRC-JCS model in engineering practice. In Rock joints, proc. int. symp. on rock joints, Loen, Norway, (eds. N. Barton and O. Stephansson), 603-610. Rotterdam: Balkema.
126. Barton N., Tunbridge L., Løset F., Kristiansen J. and Vik G. (1990): OL mountain hall with 60m span – rock mechanical investigations (in Norwegian). Norwegian annual national rock excavation conference (Fjellsprengningsteknikk - bergmekanikk – geoteknikk), pp. 36.1-36.21.

127. Barton N., Grimstad E., Aas G., Opsahl O.A., Bakken A., Johansen E.D. and Pedersen O. (1992): Norwegian method of tunnelling. World Tunnelling, Vol. 5, June, pp. 231-236; August, pp. 324-328. Also published in NGI Publ. no. 194.
128. Barton N., By T.L., Chryssanthakis L., Tunbridge L., Kristiansen J., Løset F., Bhasin R.K., Westerdahl H. and Vik G. (1992): Comparison of prediction and performance for a 62 m span sports hall in jointed gneiss. Proc. 4th. int. rock mechanics and rock engineering conf., Torino, Paper 17.
129. Barton N. & Grimstad E. (1994): The Q-system following twenty years of application in NMT support selection. Felsbau 12 No.6, pp. 428-436.
130. Barton N., Grimstad E., and Palmström A. (1995): *Design for tunnel support*. Chapter 8 in Sprayed Concrete, properties, design and application, ed. by S.A. Austin and P.J. Robins, 1995, pp. 148 – 168.
131. Barton N., Roald S. and Buen B. (2001/2002): Strengthening the case for grouting. Tunnels & Tunnelling, part 1: December 2002, side 34-36; part 2: January 2002, pp. 37-39.
132. Barton, N. and Grimstad, E. (2004): The Q-system following thirty years of development and application in tunneling projects. Proc. ISRM Symp. EUROCK 2004. Salzburg, Austria, 2004, pp. 15-18.
133. Batchelor A. S., Kwakwa K. A., Proughten A. J. and Davies N. (1997): Determination of the in-situ stresses at Sellafield, UK: A case study. In Proc. Int. Symp. on Rock Stress, Kumamoto (Ed. K. Sugawara and Y. Obara), pp. 265–276. A.A. Balkema, Rotterdam.
134. Bates R.L., Jackson J.A. (1980): Glossary of geology. American Geological Institute, Fall Church, Virginia, second edition 1980.
135. Bayer G. E. (1980): Three techniques of subway construction with special reference to the Frankfurt subway extension. Proceedings of the 1980 Annual Conference of the Canadian Society for Civil Engineering. (Winnipeg). Published by University of Manitoba 1980. Paper T3, 10 p.
136. Beaumont J.E. (1979): Remote sensing survey techniques, The Highway Engineer, 26 (4), pp. 2-14.
137. Beck, A.; Golta, A. (1972). Tunnelsanierungen der Schweiz. Bundesbahnen, Schweiz Bauzeitung, 90,' No. 36.
138. Beer A.J., Stead D. and Coggan J.S. (2002): Estimation of the Joint Roughness Coefficient (JRC) by Visual Comparison. Rock Mechanics and Rock Engineering, (35)1, 65-74.
139. Belcher D.J. (1946): Engineering applications of aerial reconnaissance, Bull. Geol. Soc. Amer., 57, pp. 727-34.
140. Bell F.G. and Haskins D.R. (1997): A geotechnical overview of Katse Dam and Transfer Tunnel, Lesotho, with a note on basalt durability. Engineering Geology, Vol. 46, pp.175-198.
141. Bell F.G., Haskins D.R. and Jermy C.A. (2000): Basalt Durability and the Transfer Tunnel: Lesotho Highlands Water Project. Conf. Proceedings – GeoEng 2000 – Melbourne, Australia
142. Bellwald, P. (1991). A Contribution to the Design of Tunnels in Argillaceous Rocks. Ph.D. Thesis, MIT, Cambridge, Massachusetts.

143. Bellwald, P.; Einstein, H.H. (1987). Elasto Plastic Constitutive Model. Proceedings, 6th Int'l. Congress of the ISRM, Montreal.
144. Benjamin J.R. and Cornell C.A., (1970): Probability, Statistics and Decision for Civil Engineers. McGraw-Hill, New York.
145. Benson R.P., Murphy D.K. and McCreathe D.R. (1970): Modulus testing of rock at the Churchill falls underground powerhouse, Labrador. Determination of the in-situ modulus deformation of rock. ASTM STP 477, pp. 89 – 116.
146. Benson R.P. (1970): Rock mechanics aspects in the design of the Churchill Falls, underground powerhouse, Labrador. Ph.D Thesis, University of Illinois, 1970.
147. de Beer J.E., Hammond A.J., MacG. Robertson A., van Schalkwyk A. and Weaver J.M. (1976): A guide to core logging for rock engineering. Proc. Symp.on Exploration for Rock Engineering Johannesburg, Nov. 1976, pp 71 – 86
148. Berdal B., Buen B. and Johansen J. (1985): Lake tap- The Norwegian method. Proc. Tunnelling '85, Brighton, England, March 1985, 7 pp.
149. Bergeret A., Jarriand P. and Caillot G. (1983): France's most powerful pumped storage plant. Water Power and Dam Construction, April 1983, pp. 37-44.
150. Bergh-Christensen J. (1968): On the blastability of rocks (in Norwegian). Lic.Techn. thesis, Geological Inst., Techn. Univ. Norway, Trondheim.
151. Bergh-Christensen J. and Selmer-Olsen R. (1970): On the resistance to blasting in tunnelling. Proc. 2nd ISRM Congr., Belgrade, Vol. 3, paper 5 - 7.
152. Bergh-Christensen J. and Dannevig N.T. (1971): Engineering geological considerations concerning the unlined pressure shaft at the Mauranger power project. Unpublished report, Geoteam A/S, Oslo, 1971.
153. Bergh-Christensen J. (1982): Design of unlined pressure shaft at Mauranger power plant, Norway. Proc. ISRM Symp. on Rock Mechanics: Caverns and Pressure Shafts, Aachen, May 1982, pp. 531-536.
154. Bergh-Christensen J. and Kjolberg R.S. (1982): Investigations for a 1000 meter head unlined pressure shaft at the Nyssset/Steggje project, Norway", Proc. ISRM Symp. Rock Mechanics: Caverns and Pressure Shafts, Aachen, 1982, pp. 537-543.
155. Bergman M. (1975): Borehole investigations in rock; evaluation of the reliability of methods (in Swedish). National Swedish Building Research, report no R17:1975, 69 p.
156. Bergman S.G.A. (1956): Functional rock classification. (in Swedish). IVA Publ. 142, Stockholm.
157. Bergman S.G.A. and Johnsson N.E. (1981): Rock burst problems in ÖEF 600 m² tunnels in Brofjorden, Sweden. In: Bergmekanikdag 1981 - Papers presented at Rock Mechanics Meeting in Stockholm 1981, pp. 121-147 [In Swedish].
158. Bergman S.G.A. and Stille H. (1982): Rock burst problems in a 2.6 million m³ underground crude oil storage in granite. In: Rock mechanics: caverns and pressure shafts. Vol. 1-2, pp. D301-309. ISRM, Rotterdam, Balkema. ISBN 90-6191-232-6.
159. Bergstrom M., Malmtorp J., Nylén K. and Rosengren R. (2003): Framgångsfaktorer i berg-byggandet, etapp 1: Inledande studie. Success factors in rock construction (In Swedish). Available

as pdf on www.SveBeFo.se.

160. Berkey C.P. and Sanborn J.F. (1923): Engineering geology of the Catskill water supply. ASCE Transactions, paper No. 1509, October, 1923.
161. Berner D. (1991): Die Geologie des Freudensteintunnels. Ingenieurbauwerke 7 (1991), Der Freudensteintunnel, pp. 58–118.
162. Bétourneau, M.C. 1987. A design philosophy for surface crown pillars in hard rock mines. Bull. Canadian Inst. Min. Metall. 80 (903), pp. 45-61.
163. Berthelsen O.J. (1992): Guide to cavern engineering. Geotechnical Engineering Office, Hong Kong, Geoguide 4, 159 p.
164. Bhasin R. (1991): Evaluation of soft rock conditions in tunnels through the Lower Himalayan regions; a contribution for updating of the Q-system. Cand.Scient. thesis, University of Oslo, Norway, 83 p.
165. Bhawani Singh, Jethwa J.L., Dube A.K. and Singh B. (1992): Correlation between observed support pressure and rock mass quality. Tunnelling and Underground Space Technology, Vol. 7, No. 1, pp. 59-74.
166. Bieniawski Z.T. (1967): Mechanism of brittle fracture of rock, parts I, II and III. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr. 4(4), pp. 395-430.
167. Bieniawski Z.T. (1972): Propagation of brittle fracture in rock. Proc. 10th Symp. Rock Mech., AIME, New York, pp. 409-427.
168. Bieniawski Z.T. (1973): Engineering classification of jointed rock masses. Trans. S. African Instn. Civ. Engrs., Vol 15, No 12, Dec. 1973, pp. 335 - 344.
169. Bieniawski Z.T. (1974): Geomechanics classification of rock masses and its application in tunneling. Proc. Third Int. Congress on Rock Mechanics, ISRM, Denver 1974, pp. 27-32.
170. Bieniawski Z.T. (1974): Estimating the strength of rock materials. J. South African Inst. Min. Metall. 74 (8), pp. 312-320.
171. Bieniawski Z.T. (1975): The point load test in geotechnical practice. Engineering Geology, 9, pp. 1-11.
172. Bieniawski Z.T., (1976): Rock mass classifications in rock engineering. Proceedings Symposium on Exploration for Rock Engineering; ed. Z.T. Bieniawski A.A. Balkema, Rotterdam, pp. 97-106.
173. Bieniawski Z.T. (1978): Determining rock mass deformability: Experience from case histories. Int. J. Rock Mechanics Mineral Science & Geomechanics Abstract, Vol. 15, pp. 237-247.
174. Bieniawski Z.T. (1979): The geomechanics classification in rock engineering applications. Proc. 4th. Congr. Int. Soc. Rock Mech., Montreux 2, pp. 41-48.
175. Bieniawski Z.T. (1984): Rock mechanics design in mining and tunneling. A.A. Balkema, Rotterdam, 272 p.
176. Bieniawski Z.T. (1988): Rock mass classification as a design aid in tunnelling. Tunnels & Tunnelling, July 1988

177. Bieniawski Z.T. (1989): Engineering rock mass classifications. John Wiley & Sons, New York, 251 p.
178. Bieniawski Z.T. (1992): Design methodology in rock engineering. A.A. Balkema, Rotterdam, 198 p.
179. Bieniawski Z.T., Bauer S.J. and Costin L.S. (1993): Geotechnical design methodology workshop. News Journal of International Society for Rock Mechanics, Vol. 1, No. 4, pp. 42-45.
180. Bieniawski Z.T. (1997): Quo vadis rock mass classifications? Felsbau 15, No 3, pp. 177-178.
181. Bindow F. K. and Wagner H. (1976): Contractors experience with the new Austrian Tunnelling Method. Proc. Engineering Foundation Conference (Easton) Oct. 1976. ACI publication nSP-54 1977, pp. 597 - 612.
182. Bjerrum, L., Brekke, T. L., Moum, J. and Selmer-Olsen, R. (1964): Some Norwegian Studies and Experiences with Swelling Materials in Rock Gouges. N.G.I. publ. no. 57.
183. Bjerrum L.B. (1965): Discussion of paper: Functional rock classification by S.G.A. Bergman. IVA report 142, pp. 124-125.
184. Bjerrum L., Nash J.K.T.L., Kennard R.M. and Gibson R.E. (1972): Hydraulic fracturing in field permeability testing, Géotechnique, 22 (2), pp. 319-332.
185. Bleifuss D.J. (1949): Diversion tunnel and power conduit of Nantahala hydroelectric development. ASCE Proc. Vol. 75, No. 10, 1949, pp. 1409-1439.
186. Blindheim O.T. (1972): Experience with full face tunnel boring in greenstone. Rock Excavation Conference, Oslo, 12 p, (In Norwegian).
187. Blindheim O.T. (1973): New experiences with full face boring. Rock Excavation Conference, Oslo, 13 p, (In Norwegian).
188. Blindheim O.T. (1976): Preinvestigations, resistance to blasting and drillability predictions in hard rock tunnelling. Mechanical boring or drill and blast tunnelling - Workshop, Swedish Detonic Research Foundation, Stockholm, 17 p.
189. Blindheim O.T. (1976): Rock conditions – full face boring. Rock Excavation Conference, Stockholm, 13 p, (In Norwegian).
190. Blindheim O.T. (1976): Geological parameters for full face boring. Rock Excavation Conference, Oslo, 15 p, (In Norwegian).
191. Blindheim O.T. (1976): Fullface tunnel boring in Switzerland. Study report and rock testing. Geological Engineering Report No. 15, Department of Geology, The Norwegian Institute of Technology, Trondheim, 33 p, (In Norwegian).
192. Blindheim O.T. (1977): Minifullfacer in greenstone. Rock Mechanics Conference, Oslo, 7 p, (In Norwegian).
193. Blindheim O.T. (1978): Tests with water jet cutting of Norwegian rocks. Rock Excavation Conference, Oslo, 7 p, (In Norwegian).
194. Blindheim O. T. (1978): Experience with tunnel boring with diameter 6-7m in USA. Rock Excavation Conference, Oslo, 9 p, (In Norwegian).

195. Blindheim O.T. and Wang, F. D. (1978): Testing with water jet cutting in a selection of Norwegian hard rocks. Report No. 8, Department of Geology, The Norwegian Institute of Technology, Trondheim, 67p, (In Norwegian).
196. Blindheim O.T. (1978): Water jet for rock excavation. Report No. 7, Department of Geology, The Norwegian Institute of Technology, Trondheim, 67 p, (In Norwegian)
197. Blindheim O.T. (1978): Boreability and rock support in full face bored tunnels in USA. Report No. 6, Department of Geology, The Norwegian Institute of Technology, Trondheim, 51 p, (In Norwegian).
198. Blindheim O.T. (1978): Rock mass influence on penetration, stability and costs by full face tunnel boring. Report No. 5, Department of Geology, The Norwegian Institute of Technology, Trondheim, 51 p, (In Norwegian).
199. Blindheim O.T., Johansen E.D. and Johannessen O. (1979): Criteria for the selection of full face tunnel boring or conventional tunnelling. 4th Congr. Int. Soc. Rock Mech., Montreux, 6 p. Also published in Norwegian Tunnelling Technology, Publication No. 2, Norwegian Soil and Rock Engineering Association, Norwegian Tunnelling Society, NFF, pp 33-38.
200. Blindheim O.T. (1979): Drillability predictions in hard rock tunnelling. Tunnelling '79, London, 6 p.
201. Blindheim O.T. (1979): Failure mechanisms under disc cutters. Rock Mechanics Conference, Oslo, 12 p, (In Norwegian).
202. Blindheim O.T. and Johansen E.D. (1979): New prediction model for progress and costs for full face tunnel boring. Rock Excavation Conference, Oslo, 11p, (In Norwegian)
203. Blindheim O.T. (1979): Boreability of rocks. Boreability predictions in hard rock tunnelling. Dr. ing. thesis, Report No. 10, Department of Geology, The Norwegian Institute of Technology, Trondheim, 450 p, (In Norwegian).
204. Blindheim O.T. and Helgebostad J. (1980): Full face tunnel boring at Seabrook. Boreability and rock support. Report No. 14, Department of Geology, The Norwegian Institute of Technology, Trondheim, 62p, (In Norwegian).
205. Blindheim O.T. (1981): Norwegian full face boring, what is achieved - what to expect? Rock Excavation Conference, Oslo, 4p, (In Norwegian).
206. Blindheim O.T. and Aasen, O., (1981): Tunnel boring in Oslo with three arm TBM with disc cutters. Report No. 18, Department of Geology, The Norwegian Institute of Technology, Trondheim, 88p, (In Norwegian).
207. Blindheim O.T. and Norheim S.Ø. (1981): Cutting of rocks with water jet. A test series regarding the influence of rock properties. Report No. 15, Department of Geology, The Norwegian Institute of Technology, Trondheim, 107 p, (In Norwegian).
208. Blindheim O.T. (1982): New experience about the influence of jointing on boreability and stability by fullface tunnel boring. Rock Mechanics Conference, Oslo, 17p, (In Norwegian).
209. Blindheim O.T. (1982): Fullface boring in tunnels with rock pressure problems. Rock Mechanics Conference, Oslo, 19p, (In Norwegian).
210. Blindheim O.T. (1982): Recent experiences with full face tunnel boring in hard rock. Rock mechanics Conference, Stockholm, 5 p, (In Norwegian).

211. Blindheim O.T. and Holt O.S. (1982): Rock properties by low temperatures. Strength, contraction and seismic velocity down to -45 °C. Report No. 19, Department of Geology, The Norwegian Institute of Technology, Trondheim, Norway, 68 p, (In Norwegian).
212. Blindheim O.T. (1983): Full face tunnel boring. SveBeFo-project “Underground construction in weak rock” Swedish Rock Engineering Research, Stockholm, 111 p (In Norwegian).
213. Blindheim O.T. & Beitnes A. (1986): Investigation strategy for sub-sea rock tunnels. Int. Symp. on Strait Crossings, Stavanger, 18p. Short version in Tunnels & Tunnelling, September 1986, 5p.
214. Blindheim O.T. and Olsen A.B. (1986): Geotechnical quality control in the Ålesund-Giske subsea road tunnels. Rock Mechanics Conference, Oslo, 20 p, (in Norwegian).
215. Blindheim O.T. and Beitnes A. (1986): Subsea rock tunnels. Preinvestigations and tunnelling processes. Norwegian Road Technology Seminar, Expo 86, Vancouver, 8 p.
216. Blindheim O.T. and Olsen A.B. (1987): Experience with rock support and grouting of water leakage in the Ålesund-Giske subsea road tunnels. Rock Mechanics Conference, Oslo, 26 p, (in Norwegian).
217. Blindheim O.T. (1987): Tunnel boring or drill and blast. Geological factors to consider. Case analysis.
218. Int. Conf. Underground Hydropower Plants, Oslo, 8 p.
219. Blindheim O.T. and Olsen A.B. (1989): Subsea road tunnel to Godoy. Probe drilling and grouting. Rock Mechanics Conference, Oslo, 11 p, (in Norwegian).
220. Blindheim O.T. and Olsen A.B. (1989): Prevention is better than cure. Experience with probe drilling, stability control and pre-grouting in the Ålesund-Giske subsea road tunnels. Tunnels & Tunnelling, March 1989, 4 p.
221. Blindheim O.T. and Ovstedral E. (1989): Subsea road tunnels in rock. The flexible method for low cost tunnelling. 11th IRF World Meeting, Seoul, 12 p.
222. Blindheim O.T. and Boniface A. (1989): Boreability assessments for major tunnelling projects. SANCOT Seminar, 6 p.
223. Blindheim O.T., Beitnes A. and Olsen A.B. (1990): The deepest subsea road tunnel in the world. Experiences with the Godoy tunnel. Int. Symp. Unique Underground Excavations, Denver, 19 p.
224. Blindheim O.T. and Ovstedral E. (1990): Water control in subsea road tunnels in rock. Int. Symp. on Strait Crossings, Trondheim, 8 p. Also published in Norwegian Subsea Tunnelling, Publication No. 8, Norwegian Soil and Rock Engineering Association, Norwegian Tunnelling Society, NFF
225. Blindheim O.T., Boniface A. and Richards J.A. (1991): Boreability assessments for the Lesotho Highlands Water Project. Int. Soc. Rock Mechanics, Swaziland symposium, 10 p. A short version in Tunnels & Tunnelling June 1991.
226. Blindheim O.T. and Aagaard B. (1996): Frequently asked questions about sprayed concrete. Answers for the practitioner” Second Int. Symp. on Sprayed Concrete. Modern Use of Wet Mix Sprayed Concrete for Underground Rock Support, Gol, Norway, 10p.
227. Blindheim O.T. (1997): A review of NMT, the Norwegian method of tunnelling. Int. Symp. on Rock Support, Applied solutions for underground structures. Lillehammer, 9 p.

228. Blindheim O.T. (1998): Three Gorges Project. Norwegian advisory services to the world's largest hydropower project. (in Norwegian). Rock Excavation Conference, Oslo, 16p.
229. Blindheim O.T., Johansen E.D. and Hegrenes A. (1998): Bored Road Tunnels in Hard Rock. Norwegian TBM tunnelling, 30 years of experience with TBMs in Norwegian tunnelling, Publication No. 11, Norwegian Soil and Rock Engineering Association, Norwegian Tunnelling Society, NFF, pp 57-62.
230. Blindheim O.T. (1998): Early TBM Projects (in Norway). Norwegian TBM tunnelling, 30 years of experience with TBMs in Norwegian tunnelling, Publication No. 11, Norwegian Soil and Rock Engineering Association, Norwegian Tunnelling Society, NFF, pp 43-51.
231. Blindheim O.T. and Bruland A. (1998): Boreability Testing. Norwegian TBM tunnelling, 30 years of experience with TBMs in Norwegian tunnelling. Publication No. 11, Norwegian Soil and Rock Engineering Association, Norwegian Tunnelling Society, NFF, pp 21-27.
232. Blindheim O.T. and Berg H. (1999): Sprayed concrete rock support on the Oslofjord connection. Third Int. Symp. on Sprayed Concrete. Modern Use of Wet Mix Sprayed Concrete for Underground Rock Support, Gol, Norway, 10p.
233. Blindheim O.T. (2001): Requirements and potential for modern TBM tunnelling of large diameter traffic tunnels. The Norwegian Tunnelling Conference, Norwegian Soil and Rock Engineering Association, Norwegian Tunnelling Society, NFF, November, Oslo.
234. Blindheim O.T. and Nilsen B. (2001): Rock cover requirements for subsea road tunnels. Proc. Int. Symp. on Strait Crossings, Bergen, Sept 2001, 10 p.
235. Blindheim O.T., Nilsen B. and Grov E. (2002): The effect of mixed face conditions on hard rock TBM performance. AITES-ITA World Tunnel Congress, Sydney, March 2002.
236. Blindheim O.T. and Ovstedral E. (2002): Design principles and construction methods for water control in subsea road tunnels in rock. Water control in Norwegian tunnelling, Publication No. 12, Norwegian Soil and Rock Engineering Association, Norwegian Tunnelling Society, NFF
237. Blindheim O.T. and Skeide S. (2002): Determination and co-operation is crucial for rock mass grouting to satisfy strict environmental requirements. Water control in Norwegian tunnelling, Publication No. 12, Norwegian Soil and Rock Engineering Association, Norwegian Tunnelling Society, NFF
238. Blindheim O.T. (2005): A critique of QTBM. Tunnels & Tunnelling. Intern. (June), pp. 32–35.
239. Blyth F.G.H. and De Freitas M.H. (1984): A Geology for Engineers. 7th edn, Edward Arnold, London.
240. Boden A. and Sievänen U. (1995): Low-pH injection grout for deep repositories. Summary report from a co-operation project between NUMO (Japan), Posiva (Finland) and SKB (Sweden). SKB R-05-40, Svensk Kärnbränslehantering AB.
241. Bodonyi, J. Laboratory tests on certain rocks under axially symmetrical loading conditions. Proc. 2nd Congr. Intnl. Soc. Rock Mech., Belgrade, Vol. 1, 1970, Paper 2-17.
242. Boge K. and Johansen P.M. (1995): Rock grouting, practical handbook. (In Norwegian). Norwegian Tunnelling Society (NFF), Handbook No. 1, 86 p.

243. Bonapace B. (1983): Tests and measurements for the pressure tunnels and shafts of the Sellrain-Silz hydroelectric power scheme with extremely high head. Proc. Intl. Society for Rock Mechanics, Melbourne, 1983, pp. D287-D292.
244. Boozer et al. (1963): Effect of pore fluids on the deformation behavior of rocks subjected to triaxial compression. Proc. 5th Symp. Rock Mech. Minnesota, pp. 579 - 626.
245. Bowcock J.B., Boyd J.M., Hoek E. and Sharp J.C. (1976): Drakensberg pumped storage scheme, rock engineering aspects. In Exploration for Rock Engineering (ed. Z.T. Bieniawski),; A.A. Balkema, Rotterdam, pp. 121-139.
246. Bowden F.P. and Tabor D. (1950): The friction and lubrication of solids, Part I. London: Oxford University Press; 1950.
247. Bowden F.P. and Tabor D. (1950): The friction and lubrication of solids, Part II. London: Oxford University Press 1950.
248. Bozzolo D., Pamini R. and Hutter K. (1988): Rockfall analysis - a mathematical model and its test with field data. Proc. 5th International Symposium on Landslides, Lusanne. July 1988, Vol. 1, pp. 555-560.
249. Brace W.F. (1964): Brittle fracture of rocks. In State of Stress in the Earth's Crust, W.R. Judd, ed., Elsevier, New York, pp. 111 -174.
250. Brace W.F., Paulding B. and Scholz C. (1966): Dilatancy in the fracture of crystalline rocks. J. Geophys. Res., 71: pp. 3939-3953.
251. Brace W.F. and Martin R.J. (1968): A test of the law of effective stress for crystalline rocks of low porosity. Intnl. J. Rock Mech, Min Sci., Vol. 5, No. 5, pp. 415-426.
252. Brady B.H.G. and Brown E.T. (1985): Rock mechanics for underground mining. London: Allen and Unwin. (Publishers) Ltd, 40 Museum Street, London, 527 p.
253. Brady B. H. G. and Brown E. T. (1993): Rock Mechanics for Underground Mining. Chapman and Hall, London, 2nd edn.
254. Brand E.W. (1988).: Special Lecture: Landslide risk assessment in Hong Kong. Proc. 5th International Symposium on Landslides, Lusanne. July 1988, Vol. 2, pp. 1059-1074.
255. Brantberger M., Dalmalm T., Eriksson M. and Stille H. (1998): Styrande faktorer för täthetenkring en förinjekterad tunnel, Rapport 3049, Avdelningen för Jord- och bergmekanik, Kungliga Tekniska Högskolan (KTH), Stockholm.
256. Brantberger M., Stille H., Eriksson M. (2000): Controlling grout spreading in tunnelling grouting - analyses and development of the GIN-method, Tunnelling and Underground Space Technology, Vol. 15, No. 4, pp. 343-352.
257. Brantberger M. (2006): Projektplan: Utformning av förfrågningsunderlag för injekteringsarbeten. SveBeFo, Swedish Rock Engineering Research. Non referable project plan: Tenders for grouting. In Swedish.
258. Brantberger M., Zetterqvist A., Arnbjerg-Nielsen T., Olsson T., Outters N. and Syrjänen P. (2006): Final repository for spent nuclear fuel, Underground design Forsmark, Layout D I . SKB R-06-34, Svensk Kärnbränslehantering AB.

259. Brantmark J., Taube A., and Stille H., (1998): Excavation of a sub-sea road tunnel at Hvalfjördur, Iceland. 8th international IAEG congress Vancouver. Balkema.
260. Brattli B. and Broch E. (1995): Stability problems in water tunnels caused by expandable minerals. Swelling Pressure measurements and Mineralogical Analysis. *Engineering Geology* pp. 151-169
261. Braun W.M. (1980): Application of the NATM in deep tunnels and difficult formations. *Tunnels and Tunnelling*, March 1980, pp. 17-20.
262. Braun W. M. (1991): Bridging the NATM information gap. *Tunnels and Tunnelling*. NATM edition, Summer 1991, pp. 17 - 18.
263. Bray, J.W. (1967): A study of jointed and fractured rock. *Rock Mech. and Engn. Geol.*, Vol. 5, Nos. 2 and 3 , pp. 119-136 and 197-216.
264. Brawner C.O. and Hoek E. (1977): Design, Construction and Maintenance of rock slopes on highway projects. Proc. VIIIth International Road Federation World Meeting, Tokyo. October, 1977.
265. Bredenberg H., Olsson L. and Stille H. (1981): Overvakning av grundläggningsarbeten i tätort. STU information nr 253-1981. In Swedish.
266. Bredthauer R.O. (1957): Strength characteristics of rock samples under hydrostatic pressure. Amer., Soc. Mech. Engrs. Trans., Vol. 79, pp. 695-708.
267. Brekke T. (1963): Om montmorillonittførende leirslepper og ras i fjellanlegg (On montmorillonite-containing seams and slides in rock constructions). Ph.D. thesis, Technical University of Norway (unpublished)
268. Brekke T.L. (1965): On the measurement of the relative potential swellability of hydrothermal motmorillonite clay from joints and faults in Pre-Cambrian and Paleozoic rocks in Norway. *Int. J. Rock Mech. Mining Sci.*, Vol 2, pp. 155-165.
269. Brekke T.L. and Selmer-Olsen R. (1965): Stability problems in underground construction caused by montmorillonite carrying joints and faults. *J. of Engineering Geology*, Vol. 1, No. 1, pp 3-19.
270. Brekke T.L. and Selmer-Olsen R. (1966): A survey of the main factors influencing the stability of underground constructions in Norway. Proc. 1st Int. Conference on Rock Mechanics, Lisbon, Vol. 2, 1966, pp. 257-260.
271. Brekke T.L., Bjorlykke, S. and Blindheim O.T. (1969): Finite element analysis of the Bytte unlined pressure shaft failure. Proc. of the Intn. Symp. on Large Permanent Underground Openings, Oslo, September 1969, pp. 337-342.
272. Brekke T.L. and Howard T.R. (1972): Stability problems caused by seams and faults. *Rapid Tunneling & Excavation Conference*, 1972, pp. 25-41.
273. Breu F. and Heuer R.E. (1985): Ocean bottom tap, Point LePreau cooling water tunnels, New Brunswick. Proc. Rapid Excavation and Tunneling Conf., 1985, New York, pp. 1005-1023.
274. Brewer G.A. (1956): Dilation measurements of steel sphere and rock deformations at Kemano, B.C. Proc. of the Society for Experimental Stress Analysis, Volume 13, No. 2, 1956.
275. Briand J.L. and Miran J. (1992): The flat dilatometer test, US Department of Transportation, Federal Highway Administration Pub. No. FHWA-SA-9 1-044, Washington, DC, 102 p.

276. Bridges M.C. (1976): Presentation of fracture data for rock mechanics. Proc. 2nd Australia-New Zealand Conf. on Geomechanics, Brisbane
277. British Standards Institution (1981): Code of practice for Site Investigations. BS 5930: 1981, 147 p.
278. British Standards Institution (1987): Code of Practice for Ground Anchorage, BS 8081: 1987, pp. 89-115.
279. Broadbent C.D. and Rippere K.H. (1970): Fracture studies at the Kimberley Pit. Proc. Symp. Planning Open Pit Mines, Johannesburg, A.A. Balkema, Amsterdam, pp. 171- 179.
280. Broch E. (1971): Functional classification of rock masses, general overview – point load test (in Norwegian). Norwegian annual national rock excavation conference (Fjellsprengningsteknikk – bergmekanikk, geoteknikk), Oslo, pp. 7-21.
281. Broch E. and Franklin J.A. (1972): The point-load strength test. Int. J. Rock Mech. Min. Sci., Vol. 9, pp. 669-697.
282. Broch E. and Leivestad S.I. (1973): On the influence of moisture and anisotropy upon shear strength of rocks. (in Norwegian). Publ. no.9, Geol. Inst., The Technical University of Norway, 30 p.
283. Broch, E. (1974): The influence of water on some rock properties. In Advances in Rock Mechanics, Proc. 3rd Congr, Int. Soc, Rock Mech., Denver, Vol. 2, Part A, pp. 33-38.
284. Broch E. (1977): The point-load test and its use in engineering geology (in Norwegian). Rep. no. 2, Geological Inst., Techn. Univ. Norway, Trondheim, 148 p.
285. Broch E. (1979): Changes in rock strength caused by water. Proc. 4th ISRM Congr., Montreux, Vol. 1; Balkema, Rotterdam, pp. 71-75.
286. Broch E. (1982): The development of unlined pressure shafts and tunnels in Norway. Proc. Int. Symp. on Rock Mechanics, Aachen, 1982, pp. 545-554.
287. Broch E. (1983): Estimation of strength anisotropy using the point-load test. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 20, No. 4, pp. 181 - 187.
288. Broch, E.(1984) "Unlined High Pressure Tunnels in Areas of Complex Topography", Water Power and Dam Construction, Vol. 36, No. 11, 1984, pp. 21-23.
289. Broch E. and Sørheim S. (1984): Experiences from the planning, construction and supporting of a road tunnel subjected to heavy rockbursting. Rock Mech. Rock Engn., Vol. 17, pp 15 - 35.
290. Broch E. (1996): Rock Engineering Projects outside Scandinavia. Kilpailukykyinen kalliorakentaminen seminaari, Otaniemi, Finland, pp. 7 – 25
291. Broch E. (1988): Site investigations. Norwegian Tunnelling Today, Tapir publ. Trondheim, Norway, pp. 49 - 52.
292. Broch E. (1996): Rock Engineering Projects outside Scandinavia. Kilpailukykyinen kalliorakentaminen seminaari, Otaniemi, Finland, pp. 7 – 25.
293. Broch E. and Nilsen B. (1996): Engineering Geology of Rocks. NTNU, Dept. of Geology and Minr. Res. Eng., 294 p.

294. Brook N. (1985): The equivalent core diameter method of size and shape correction in point load testing. *Int. J. Rock Mech. Sci. & Geomech. Abstr.*, Vol. 22, No. 2, pp. 61 - 70.
295. Brook N. and Dharmaratne P.G.R. (1985): Simplified rock mass rating system for mine tunnel support. *T. I. Min. Metall. A* 94, 148–154, ISSN: 0371-7844 CODEN: TIMN AQ.
296. Brooker E.W. & Ireland, H.O.: Earth pressure at rest related to stress history. *Canadian Geotechnical Journal* Vol. 2 (1965), No.1, pp. 1–15.
297. Brosch F.J. (1986): Geology and the classification of rock masses - examples from Austrian tunnels. *Bull. IAEG* no 33, 1986, pp. 31 - 37.
298. Brown A. 1982. The influence and control of groundwater in large slopes. In *Stability in Surface Mining* (ed. C.O. Brawner), pp. 19-41. New York: Society of Mining Engineers, AIME
299. Brown E.T. (1970): Strength of models of rock with intermittent joints. *J. Soil Mech. Foundn Div.*, ASCE 96, SM6, pp. 1935-1949.
300. Brown E.T. (1970): Trollope DH, Strength of model of jointed rock. *J. Soil Mech. Foundat. Div.*, ASCE 1970; 96(SM2), pp. 685-704.
301. Brown E.T., ed., (1981): *Rock Characterization, Testing and Monitoring, ISRM Suggested Methods*. Pergamon Press, Oxford.
302. Brown E.T. (1981): Putting the NATM into perspective. *Tunnels and Tunnelling*, Nov. 1981, pp. 13-17. Also in *Tunnels and Tunnelling, NATM edition*, Summer 1990, pp. 9 - 13.
303. Brown E.T. (1985): From theory to practice in rock engineering. *Trans. Instn. Min. Metall. (Sect. A: Min.industry)*, 94, 1985, pp. A67 - A83.
304. Brown E.T. (1986): Research and development for design and construction of large rock caverns. *Proc. Int. Symp. on Large Rock Caverns*. Helsinki, Finland, pp. 1937-1948.
305. Brown E.T. (1987): Introduction. Analytical and computational methods in engineering rock mechanics, (ed. E.T. Brown), pp. 1-31. London: Allen and Unwin.
306. Brown E.T. and Trollope D.H. (1970): Strength of a model of jointed rock. *J. Soil Mechs. Foundns. Div.*, ASCE, Vo1. 96, No. SM2, pp. 685-704.
307. Brown and Hoek (1978): Trends in relationships between measured in situ stresses and depth. *Int. J. Rock Mech. Min. Sci.& Geomech. Abstr.*, Vol. 15, pp. 211-215.
308. Brown E.T. and Ferguson G.A. (1979): Progressive hanging wall caving at Gath's mine, Rhodesia. *Trans. Instn Min. Metall. (Section A: Min. industry)* 88 , pp. A92-105.
309. Brown E.T. and Bray J.W. (1982): Rock-support interaction calculations for pressure shafts and tunnels. In *Rock Mechanics: Caverns and Pressure Shafts* (ed. W. Wittke) 2, pp. 555-565. Rotterdam: Balkema
310. Brown E.T., Bray J.W., Ladanyi B. and Hoek E. (1983): Ground response curves for rock tunnels. *J. Geot. Engn.*, Vol. 109, No. 1, pp. 15 - 39.
311. Brown E.T., Bray J.W., Ladanyi B. and Hoek E. (1983): Characteristic line calculations for rock tunnels. *J. Geotech. Engng Div.*, ASCE 109, pp. 15-39.

- 312. Brown E.T. and Hoek E. (1988): Determination of shear failure envelope in rock masses. *J. Geot. Engn.*, Vol 114, No. 3, pp. 371 - 373.
- 313. Brown E.T. and Hoek E. (1988): Discussion on "Determination of shear failure envelope in rock masses, by Ucar R.". *J. Geot. Engn.*, Vol. 114, No. 3, pp. 371 - 373.
- 314. Brown S.R. and Scholz C.H. (1985): Broad bandwidth study of the topography of natural rock surfaces. *J. Geoph. Res.*, 90, 12575-12582.
- 315. Brox D.R. (1992): "A Reliability-Based Approach for the Assessment of Stability and Support Requirements in Jointed Rock Excavations", 6th Australia-New Zealand Conference on Geomechanics, Christchurch, New Zealand.
- 316. Brox D.R., Konietzky H. and Rummel F. (1992): "In Situ Stress Measurements Using Hydraulic Fracturing in Jointed Rock in Hong Kong", 6th Australia-New Zealand Conference on Geomechanics, Christchurch, New Zealand.
- 317. Brox D.R., (1992): "The Investigation and Design of Rock Caverns in Hong Kong", Institute for International Research Seminar on Learning the Lessons from Tunnels and Tunneling, Hong Kong, 1992.
- 318. Brox D.R. and Lee K.W. (1995): "Yielding and Collapse of Large Span Tunnels in Weak Rock", 8th Congress of International Society of Rock Mechanics, Tokyo.
- 319. Brox D.R. and Hagedorn, H. (1996): "Prediction of In Situ Stresses Based on Observations and Back Analyses, Piora-Mulde Exploratory Tunnel, Gotthard Base Tunnel", EUROCK 1996, Turin, Italy.
- 320. Brox D.R., (1997): "First TBM Tunnel for the Greek Railways", Tunnels and Tunneling, July 1997.
- 321. Brox D.R. and Hagedorn H. (1998): "Extreme Deformation and Damage during the Construction of Large Tunnels", IAEG 8th Congress / 15th Canadian Tunneling Conference, Vancouver, Canada. Also published in *Tunneling and Underground Space Technology*, 1999.
- 322. Brox D.R., and Levell J. (2000): "Back Analyses and Stability Prediction of High wall Steepening in Weak Rock", 4th North American Rock Mechanics Symposium, PACIFIC ROCKS – Rock Around the Rim, Seattle, Washington, USA.
- 323. Brox D.R. and Levell J. (2001): "Stability Analyses and Performance of High wall Steepening in Weak Rock", SME - Society of Mining Engineers – 2001 Conference, Denver, Colorado.
- 324. Brox D.R. and Newcomen H.R. (2003): Utilizing Strain Criteria to Predict High wall Stability Performance. 10th ISRM Congress, Johannesburg, South Africa, 2003.
- 325. Brox D.R. and Newcomen H.R. (2004): Utilizing Strain Criteria to Predict High wall Stability Performance. 2004 SME Conference, Denver, Colorado, USA.

- 326. Brox D.R., Procter P., Pringle J., Garrod B., Morrison T. and Saltis A. (2004): The Seymour Capilano Twin Tunnels, Vancouver, BC, Canada. 18th Tunneling Association of Canada Conference, Edmonton. 2004.
- 327. Brox D.R., Pringle J., Phelps D., Procter P. Morrison T., and Saltis A. (2005): The Seymour Capilano Twin Tunnels, Vancouver, BC, Canada. RETC 2005 Seattle.
- 328. Brox D.R., Genschel C., Messner J., Morrison T., and Saltis A. (2006): Shotcrete Support for the Seymour Shaft and Shaft base Chamber, Seymour Capilano Twin Tunnels Project, Whistler, BC, Canada. Shotcrete for Underground Support Conference 2006.
- 329. Brox D.R., Bean S., Branco P., and Coulter T. (2006): Planning for Canada's First Bored Road Tunnel in over 40 Years, Kicking Horse Canyon Project, BC Tunneling Association of Canada 19th National Conference, Vancouver, BC 2006.
- 330. Brox D.R., Procter P. and Morrison J. (2007): Tunneling Under Glaciers – Galore Creek Mine Access Tunnel. RETC 2007 Toronto
- 331. Brox D.R., Procter P., Frost L., Venne C. and Lepinay D. (2008): Tunneling Under Glaciers – Galore Creek Mine Access Tunnel – Construction Update. NAT 2008 San Francisco
- 332. Brox D.R., Procter P., Stethem C. and Jones A. (2008): Large Avalanche Protection Canopies for a Mine Access Tunnel – Galore Mine Project. Snow Engineering, Whistler, 2008.
- 333. Brox D.R. Cardoza, R. and Venturini, G. (2009): Technical Considerations for TBM Tunneling in the Andes, RETC 2009, June 2009, Las Vegas, USA.
- 334. Brox D.R. (2009): Tunnels as Environmentally Acceptable Solutions for Infrastructure in BC, Association of Professional Engineers and Geoscientists of BC Innovation Magazine, August 2009
- 335. Brox D.R., Chamy L, Charalambu H., Pearce H., Piaggio G., Revuelta J., Cabanas A., Periera J., Blondell J., Diez R., Essex R., Powell D., Procter P. and Warren S. (2010): Planning and Design for the New Mine Level Access Tunnels at El Teniente, Chile. International Tunneling Association (ITA) World Tunnel Congress, Vancouver, Canada, 2010.
- 336. Brox D.R. Construction of the 57 km Gotthard Base Rail Tunnel in Switzerland and Tunneling in British Columbia, Swiss-Canadian Chamber of Commerce Presentation, January 2011.
- 337. Brox D.R. (2012): Design, Construction and Operation of Unlined Pressure Tunnels: Suggestions for Good Industry Practice. RETC 2011, June 2011, San Francisco, USA.
- 338. Brox D.R. (2012): Evaluation of Overstressing of Deep, Hard Rock TBM excavated Tunnels in British Columbia. Tunneling Association of Canada (TAC) Conference 2012, Montreal, Quebec.

339. Brox D.R. (2013): Evaluation of Overstressing of Deep Hard Rock Tunnels, World Tunnel Congress 2013, Geneva, Switzerland.
340. Bruge T. A. and Bachli R. (1991): Additives and mixtures for shotcrete. *Tunnels and Tunnelling*, January 1991, pp. 54 - 56.
341. Bruland A., Dahlø T.S. and Nilsen B. (1995): Tunnel performance estimation based on drillability testing. Proc. 8th Int. ISRM Congr. on Rock Mechanics, Tokyo, pp. 123-126.
342. Brune, G. (1965): Anhydrite and gypsum problems in engineering geology. *Bull. Assoc. Eng. Geol.*, Vol.3, pp. 26-38.
343. Bouchier F., Dib E. and O'Flaherty M. (1992): Practical improvements to installation of cable bolts: progress at Campbell Mine. In *Rock support in mining and underground construction*, proc. int. symp. on rock support, Sudbury, (eds P.K. Kaiser and D.R. McCreath), pp. 311-318. Rotterdam: Balkema.
344. Bucky P.B. (1931): Use of models for the study of mining problems. *Am. Inst. Min. Metall. Engrs*, Technical Publication 425.
345. Buen, B., Gustavsen T. and Palmstrom, A. (1979): Leakage measurements and control during filling up of unlined tunnels and shafts with internal waterpressure up to 590 meters., Norwegian annual national rock excavation conference (Fjellsprengningsteknikk – bergmekanikk, geoteknikk), Oslo Proceedings, Paper No. 27A, 1979, Tapir, Trondheim (in Norwegian).
346. Buen B. and Palmström A. (1982): Design and supervision of unlined hydropower shafts and tunnels with head up to 590 m. *ISRM Symposium*, Aachen, 1982, pp. 567 – 574.
347. Buen B., Gausereide L.R. and Mathiesen C. (1994): Engineering Geology in the Design and Construction of the Alfalfa Hydroelectric Plant in Chile. Proc IV CSRM conference regarding Integral Approach to Applied Rock Mechanics, Santiago, Chile. 10-14 May, Vol. I, pp. 511-521.
348. Buendia-Martinez J. and Gomez-Jaramillo G. (1974): The Chivor hydroelectric project in Colombia. *Water Power*, December 1974, pp. 391-399.
349. Bullock S.J. (1978): The case for using multichannel seismic refraction equipment and techniques for site investigation. *Bulletin of the Association of Engineering Geologists*, 14 (1), pp. 19-35.
350. Bunce C.M. (1994): Risk Analysis for Rock Fall on Highways. MSc. thesis submitted to the Department of Civil Engineering, University of Alberta, Canada. 129 pages.
351. Burdin W.W. (1970): Design of the Carters pumped storage project. *ASCE Journal of the Power Division*, June 1970, pp. 383-400.
352. Burland J.B., Moore J.F.A. and Smith P.D.K. (1972): A simple and precise borehole extensometer. *Géotechnique*, 22, pp. 174-177.
353. Burland J.B. and Symes M.A. (1982): A simple axial displacement gauge for use in the triaxial apparatus. *Géotechnique*, 26, pp. 371-375.
354. Burton A.N. (1965): Classification of rocks for rock mechanics. Letter to the editor, *Int. J. Rock Mech. Mining Sci.*, Vol. 2, pp. 105.
355. Burton A.N. (1969): Air photograph interpretation in site investigation for roads. *Roads and Road Constr.*, 47 (555), pp. 72-76.

356. Burwell E.F.jr. and Roberts G.D. (1950): The geologist in the engineering organization. Chapter 1 in Application of Geology to Engineering Practice (Berkey Volume): Geological Society of America, 327 p.
357. By T.L. (1985): Vibrations in soil and rock. Proc. Int. Symp. on underground structures in urban areas, Prague 1985, pp. 33-45.
358. Byrlee, J.D. (1967): Theory of Friction based on brittle fracture. *J. Appl. Phys.*, Vol. 38, pp. 2928- 2934.
359. Byerlee, J.D. (1968): Brittle-ductile transition in rocks. *J. Geophys. Res.*, VoI. 73, No. 14, pp. 4741-4750.
360. Bywater S. and Fuller P.G. (1984). Cable support for lead open stope hanging walls at Mount Isa Mines Limited. In Rock bolting: theory and application in mining and underground construction, (ed. O. Stephansson), 539-556. Rotterdam: Balkema.
361. Cai M. and Horii H. (1992): A constitutive model of highly jointed rock masses. *Mech. Mater.* 1992, 13, pp. 217-246.
362. Cai M., Kaiser P. K., Uno H., Tasaka Y. and Minami M. (2004): Estimation of rock mass strength and deformation modulus of jointed hard rock masses using the GSI system. *Int. J. RockMech. Min. Sci.*, v.41.1, pp. 3-19.
363. Cai M. (2008): Influence of intermediate principal stress on rock fracturing and strength near excavation boundaries — Insight from numerical modelling. *Int. J. Rock Mech. Min. Sci.*, 45, pp. 763-772.
364. Call R.D., Savy J.P. and Nicholas D.E. (1976): Estimation of joint set characteristics from surface mapping data. Monograph on Rock Mechanics Applications in Mining. SME-AIME, pp 65-73.
365. Cambefort H. (1977): The principles and applications of grouting. *Quarterly Journal of Engineering Geology*, Vol. 10, 1977, pp. 57-95.
366. Cameron-Clarke I.S. and Budavari S. (1981): Correlation of rock mass classification parameters obtained from borecore and in-situ observations. *J. Engn. Geol.*, Vol 17, pp. 19-53.
367. Cardwell, jr., W.T., (1954): Swelling Clay Identification. *Clays and Clay Minerals* (1954), p. 482.
368. Carle S. F. and Fogg G. E. (1997): Modelling spatial variability with one and multidimensional continuous-lag markov chains. *Mathematical geology*, v 29, no. 7, 891-918.
369. Carle S. F. (1999): T-PROGS: Transition Probability Geostatistical Software. Version 2.1. Hydrologic Sciences Graduate Group. University of California, Davis, USA.
370. Carlsson A. and Olsson T. (1977): Variations of hydraulic conductivity in some Swedish rock types. *Proc. Int. Symp. Rockstore -77*, pp. 257-263.
371. Carlsson A. and Olsson T. (1982): Characterization of deep-seated rock masses by means of borehole investigations. *Research and Development 5:1*, Swedish State Power Board, Stockholm, Sweden.
372. Carlsson A. and Christiansson R. (1986): Rock stress and geological structures in the Forsmark area. In *Proc. Int. Symp. on Rock Stress and Rock Stress Measurements*, Stockholm (Ed. O. Stephansson). Centek Publishers, Lulea.

373. Carlsson A. and Christiansson R. (2007): Construction experiences from underground works at Forsmark, Compilation Report. SKB Report R-07-10. Svensk Kärnbränslehantering AB, Stockholm.
374. Carmichael T.J. and Lee C.F. (1977): Rock mass characterization for location and design of an underground oil storage facility. 18th US Symp. on Rock Mechanics, Keystone, Colorado, 1977, pp. 5A4-1 - 5A4-8.
375. Carmichael R.S., Ed. (1989): Handbook of physical properties of rocks and minerals. CRC Press, Florida
376. Carr J.R. and Warriner J.B. (1989): Relationship between the fractal dimension and joint roughness coefficient. Bulletin - Association of Engineering Geologists, (26)2, 253-263.
377. Carter T.G. (1983): The site investigation and engineering characterization of glacial and glacilacustrine materials. PhD. thesis, University of Surrey.
378. Carter T.G. (1992): Prediction and Uncertainties in Geological Engineering and Rock Mass Classification Assessment. Proc. 4th Italian Rock Mechanics Conference, Torino, pp.1.1-1.22.
379. Carter T.G. (1992): A new approach to surface crown pillar design. Proc. 16th. Canadian Rock Mechanics Symposium, Sudbury, pp. 75-83.
380. Carter T.G. and Miller R. I (1996): Some Observations on the Time Dependency of Collapse of Surface Crown Pillars. Proc. 2nd North American Rock Mechanics Conf., Montreal, pp. 285-294.
381. Carter T.G., Steels D., Dhillon H.S. and Brophy D. (2005): Difficulties of Tunnelling under High Cover in Mountainous Regions. Proc. Intn. AFTES Congress, Tunnelling for a Sustainable Europe, Chambery, pp. 349-358
382. Carter T.G., Cottrell B.E., Carvalho J.L. and Steed C.M. (2008): Logistic Regression improvements to the Scaled Span Method for dimensioning Surface Crown Pillars over Civil or Mining Openings. Proc. 42nd US Rock Mechanics Symposium and 2nd Can-US Rock Symp. San Francisco. Paper 08-282 10pp.
383. Carter T.G., Diederichs M.S. and Carvalho J.L. (2008): Application of modified Hoek-Brown transition relationships for assessing strength and post yield behaviour at both ends of the rock competence scale. The Journal of the Southern African Institute of Mining and Metallurgy, Vol. 108: pp. 325-338.
384. Carter T.G. (2010): Applicability of Classifications for Tunnelling - Valuable for Improving Insight, but Problematic for Contractual Support Definition or Final Design. Proc. WTC 2010, 36th ITA Congress, Vancouver, Paper 3 Session 6c, 19th May, 10p.
385. Casacci S., Roche N. and Jarriand P. (1983): High-head pump-turbines: French experience. Water Power and Darn Construction, February 1983, pp. 31-40.
386. Casagrande A. (1947): Classification and identification of soils. Proc. ASCE, 73 (6), pp. 783-810.
387. Casagrande A. (1948): Classification and identification of soils. Trans. ASCE, Vol. 113, pp. 901-992; reprint of Casagrande (1947) including discussion.
388. Casagrande A. (1960): Karl Terzaghi — his life and achievements. In From Theory to Practice in Soil Mechanics, John Wiley, New York. pp. 3-21.

389. Castellani V. and Dragoni W. (1991): Italian tunnels in antiquity. *Tunnels & Tunnelling*, March 1991, pp. 55-57.
390. Castelli E. (1992): Geomechanics characterization methodologies: a matrix approach. *Periodico della Societa Italiana Gallerie* 38, pp.13-25.
391. Castro L. (1996): Analysis of Stress-Induced Damage Initiation around Deep Openings Excavated in a moderately jointed brittle rock mass. Ph.D. Thesis, Dept. of Civil and Rock Mechanics Eng., Univ. of Toronto.
392. Castro, L.A.M., Grabinsky M.W. and McCreath D.R. (1997): Damage initiation through extension fracturing in a moderately jointed brittle rock mass. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, 34(3-4).
393. Castro L.A.M., McCreath D.R. and Oliver P. (1996): Rockmass damage initiation around the Sudbury Neutrino Observatory cavern. In Proc. 2nd North American Rock Mechanics Symposium, Montreal (Ed. M. Aubertin, F. Hassani and H. Mitri), vol. 2, pp. 1589–1595. A.A. Balkema, Rotterdam.
394. Castro S., Van Sint Jan M., González R., Lois P. and Velasco L. (2003): Dealing with Expansive Rocks in the Los Quilos and Chacabuquito Water Tunnels - Andes Mountains of Central Chile. Proc. ISRM-2003, Technology Roadmap for Rock Mechanics, South African Institute of Mining and Metallurgy.
395. Cecil O.S. (1970): Correlations of rock bolt - shotcrete support and rock quality parameters in Scandinavian tunnels. Ph.d. thesis Univ. of Illinois 1970; also in Proc. Swedish Geotech. Institute, No 27, 1975, 275 p.
396. Cecil O.S. (1971): Correlation of seismic refraction velocities and rock support requirements in Swedish tunnels. Reprints and preliminary reports, No. 40, Swedish Geotechnical Institute, Stockholm.
397. C.E.C.T. (1979) (European Committee for Boilernaking and Kindred Steel Structures): Recommendations for the design, manufacture, and erection of steel penstocks of welded construction for hydro-electric installations.
398. CEN (1994): Eurocode 7: Geotechnical Design - Part 1: General rules. European Prestandard ENV 1997-1, Comité Européen de Normalisation, 123 p.
399. Chan Y.C., Chan C.F. and Au S.W.C. (1986): Design of a boulder fence in Hong Kong. Conf. On Rock Engineering and Excavation in an Urban Environment. Hong Kong: Institution of Mining & Metallurgy.
400. Chang Y. (1994): Tunnel support with shotcrete in weak rock; a rock mechanics study. Doctoral thesis of the Royal Institute of Technology, Department of Civil and Environmental Engineering, Stockholm, 1994, 166 p.
401. Chang Y., Swindell R., Bogdanoff I., Lindström B., Termén J. and Starsec P. (2005): Study of tunnelling through water-bearing fracture zones — Baseline study on technical issues with NE-1 as reference. SKB R-05-25, Svensk Kärnbränslehantering AB.
402. Chapman E.J.K. (1961): Pressure tests on rock galleries for the Ffestiniog pumped storage plant. International Congress on Large Dams, Rome, 1961, Question No. 25, Reply No. 22, pp. 237-220.

403. Chappell B.A. (1987): Predicted and measured rock mass moduli. *J. of Mining Sci. and Tech.*, 6 (1), pp. 89-104.
404. Chappell B.A. (1990): Rock mass characterization for dam foundations. *J. Geotechn. Engn.*, Vol 116, No. 4, pp. 625 - 646.
405. Chaves J.R. and Schuster R.L. (1964): Use of aerial colour photography in materials surveys. *Highway Research Record*, No. 63, pp. 1-9.
406. Chen E.P. (1989): A constitutive model for jointed rock mass with orthogonal sets of joints. *J. Appl. Mech. Trans. ASME*, 1989, 56, pp. 25-32.
407. Chen, F.H. (1988): Foundations on Expansive Soils, Elsevier.
408. Chen J.F. and Vogler U.W. (1992): Rock cuttability/boreability assessment research at the CSIR. TUNCON '92, Design and Construction of Tunnels, Maseru, Lesotho, pp. 91-97
409. Chen J.P., Fan J.H., Liu D. (2005): Review and prospect on the application and research of RQD (in Chinese). *Yantu Lixue/Rock and Soil Mechanics*26 (SUPPL. 2): pp. 249-252.
410. Cheng Y. (1987): New development in seam treatment of Feitsui arch dam foundation. *Proc. 6th Cong. ISRM*, Montreal, pp. 319-326.
411. Cheng Y. and Liu S.C. (1990): Power caverns of the Mingtan Pumped Storage Project, Taiwan. In *Comprehensive Rock Engineering* (ed. J.A. Hudson) 5, pp. 111-132.
412. Chernyshev S.N. and Dearman W. (1991): *Rock Fractures*, Butterworth-Heinemann, London, 272 p.
413. Chiaverio F. (2002): Chienbergtunnel (Umfahrung Sissach), Tunnel im quellhaften Juragestein. *Mitteilungen Schw. Gesellschaft für Boden- und Felsmechanik*, No. 145, pp. 27–37. Zürich.
414. Chiaverio F. and Tuth A. (2010): Repair of the heaved section in the Chienbergtunnel using yielding supports. *Geomechanics and tunnelling*, vol 3, issue 4
415. Chishaki A., Kadivar M. H. and Aikawa A. (1990): A statistical study on the preliminary design of tunnels by the New Austrian Tunnelling Method. *Conf. Memoirs of the Faculty of Engineering of Kyushu University*, Japan, Volume 50, No. 4, December 1990, pp. 341 - 361.
416. Choi S.Y., Park H.D. (2004): Variation of rock quality designation (RQD) with scanline orientation and length: a case study in Korea. *Int J Rock Mech Min Sci* 41(2): pp.207–21.
417. Christensen, N.I. (1989): Seismic velocities, Section VI in *Handbook of Physical Properties of Rocks and Minerals*, R.S. Carmichael (ed.).
418. Christian J.T. (2004): Geotechnical engineering reliability — How well do we know what we are doing? *Journal of geotechnical and geoenvironmental engineering*, ASCE. October 2004, pp 985-1003.
419. Christiansson R. and Martin C.D. (2001) In-situ stress profiles with depth from site characterization programs for nuclear waste repositories. In *Proc. EUROCK 2001*, Espoo, Finland (Ed. P. Särkkä and P. Eloranta), pp. 737–742. A.A. Balkema, Rotterdam.
420. Christiansson R. and Jansson T. (2003): A test of different stress measurement methods in two orthogonal bore holes in Äspö Hard Rock laboratory (HRL), Sweden. *Int. J of Rock Mech and Mining Sciences*. Vol 40, Nos 7 – 8, pp. 1161-1172.

421. Christiansson R. and Hudson J.A. (2003): ISRM Suggested Methods for stress estimation – Part 4: Quality control of stress estimation. *Int. J of Rock Mech and Mining Sciences.* Vol 40, Nos 7 – 8, pp. 1021-1026.
422. Chun B.S., Ryu W.R., Sagong M., Do J.N. (2009): Indirect estimation of the rock deformation modulus based on polynomial and multiple regression analyses of the RMR system. *Int J Rock Mech Min Sci* 46: pp. 649–58.
423. Clarke B.G. and Allan P.G. (1989): A self-boring pressuremeter for testing weak rock. *Proc. 12th Int. Conf Soil Mech. and Found. Eng.,* Volume 1, pp. 21 1-214.
424. Clayton C.R.I. (1990): SPT energy transmission: theory measurement and significance. *Ground Engineering,* 23 (10), pp. 33-42.
425. Clegg I.D. and Hanson D.S. (1992): Ore pass design and support at Falconbridge Limited. In *Rock support in mining and underground construction, proc. int. symp. on rock support, Sudbury,* (eds P.K. Kaiser and D.R. McCreath), pp. 219-225. Rotterdam: Balkema.
426. Clerici A. (1993): Indirect determination of the modulus of deformation of rock masses - Case histories. *Proc. Int. Conf. Eurock'93,* pp. 509 - 517.
427. Clifford R.L. (1974): Long rockbolt support at New Broken Hill Consolidated Limited. *Proc. Aus. Inst. Min. Metall.,* No. 251, pp. 21-26.
428. Clough R.W. (1960): The finite element method in plane stress analyses. *Proc. 2nd. ASCE Conference on Electronic Computation, Pittsburgh,* pp. 345-378.
429. Coates D.F. (1964): Classification of rocks for rock mechanics. *Rock Mech. and Mining Sci.,* Vol 1, pp. 421-429.
430. Coates D. (1966): Rock Mechanics Principles. Ottawa: Dept. Mines and Technical Surveys
431. Coates D.F. and Patching, T.H. (1968): A recommended rock classification for rock mechanics purposes. *CIM Bull. (October),* 1195–1197.
432. Coates, D.F. (1970): Rock mechanics principles. *Mines Branch Monograph 874.* Mines Branch, Dept. of Energy, Mines and Resources, Ottawa.
433. Çolak B. (2012): Assessment of the Gökgöl cave stability with analytical and numerical analysis methods. *Bülent Ecevit University, Graduate School of Natural and Applied Sciences, M.Sc. Thesis, Zonguldak, Turkey,* 185p.
434. Colback P.S. and Wiid B.L. (1965): The influence of moisture content on the compressive strength of rock. *Proc. Symp. on Rock Mechanics, Toronto,* pp. 65-83.
435. Connaughton J. N. (1994): Value by competition A guide to the Competitive Procurement of Consultancy Services for Construction. *CIRIA Special Publication ,117, London 1994*
436. Cook F.B. and Goodman R.L. (1956): Design of the Eklutna Project, Alaska. *ASCE Journal of the Power Division, December 1956, Paper No. 1132,* 26 p.
437. Cook N. G.W. (1965): A note on rockbursts considered as a problem of stability. *J. S. African Inst. Min. and Metall.,* 65(8): 436–528.

438. Cook N.G.W. (1965) The failure of rock. *Int. J. Rock Mech. Min. Sci. Geomech. Abstr.* 2, 389-403.
439. Cook N.G.W., Hoek E., Pretorius J.P.G., Ortlepp W.D. and Salamon M.D.G. (1966): Rock Mechanics applied to the study of rockbursts: a synthesis of the results of rockburst research in South Africa up to 1965. *J. S. African Inst. Min. and Metall.*, pp. 436–528.
440. Cook N.G.W. (1967): The design of underground excavations. In Proc. 8th U.S. Symp. on Rock Mechanincs, Univ. of Minnesota (Ed. C. Fairhurst), pp. 167–193. Am. Inst. Min. Metall. and Petrol. Engns., New York.
441. Cook N.G.W. (1970): An experiment proving that dilatancy is a pervasive volumetric property of brittle rocks loaded to failure. *Rock Mech. and Rock Engn.*, 2: pp. 181–188.
442. Cooke J.B. (1958): The Haas hydroelectric power project. *ASCE Journal of the Power Division*, February 1958, Paper No. 1529, 40 pp.
443. Cooke J.B, Libby J.W. and Madill J.T. (1962): Kemano tunnel operation and maintenance. *The Engineering Journal*, August 1962, 19 pp.
444. Colley G.C. (1963): The detection of caves by gravity measurements. *Geophysical Prospecting*, 1 (2), pp. 1-9.
445. Cooling L.F. and Golder H.Q. (1942): The analysis of the failure of an earth dam during construction. *J. Inst. Civ. Eng.*, 19, pp. 38-55.
446. Coon R.F. and Merritt A.H. (1970): Predicting the modulus of deformation using rock quality indexes. *ASTM Special Publication 477*, ASTM, Philadelphia, pp. 154 - 173.
447. Cording E.J. and Deere D.U. (1972): Rock tunnel supports and field measurements. *Proc. North American rapid excav. tunneling conf.*, Chicago, (eds. K.S. Lane and L.A. Garfield) 1, pp. 601-622. New York: Soc. Min. Engrs, Am. Inst. Min. Metall. Petrolm Engrs.
448. Cording E.J., Hendron A.J. and Deere D.U. (1971): Rock engineering for underground caverns. *Proc. Symp. on Underground Rock Chambers*, 1971 , pp. 567-600. New York: American Society of Civil Engineers.
449. Cording E.J. and Mahar J.M. (1974): The effect of natural geologic discontinuities on behavior of rock in tunnels. *Proc. Rapid Exc. & Tunn. Conf.*, AIME, pp. 107-138.
450. Corthésy R. and Leite M.H. (2008): A strain-softening numerical model of core discing and damage. *Int J Rock Mech Min Sci* 45, pp. 329-350.
451. Costa, J.E. and Baker, V.R. (1981): *Surficial Geology, Building with the Earth*, Wiley
452. Cottiss G.I., Dowel R.W. and Franklin J.A. (1971): A rock classification system applied in civil engineering, part 1. *Civil Engn. and Public Works Review*, June 1971, pp. 611-614.
453. Cottiss G.I., Dowel R.W. and Franklin J.A. (1971): A rock classification system applied in civil engineering, part 2. *Civil Engn. and Public Works Review*, July 1971, pp. 736-743.
454. Coulomb C.A. (1776): *Essai sur une application des regles de maximis et minimis a quelques problemes de statique, relatifs a l'architecture*. *Memoires de Mathematique & de Physique* 7, pp. 343- 82.

455. Cowie P.A. and Scholz C.H. (1992): Displacement-length scaling relationship for faults; data synthesis and discussion. *J. of Struct. Geol.*, Vol. 14, No. 10, pp. 1149 - 1156.
456. Cravero M., Iabichino G. and Piovano V. (1995): Analysis of large joint profiles related to rock slope instabilities. 8th ISRM 25/09/1995, Tokio, Japan, AA Balkema, Rotterdam.
457. Crouch S.L. and Starfield A.M. (1983): Boundary element methods in solid mechanics. London: Allen and Unwin, (Publishers) Ltd, 40 Museum Street, London, 527 p.
458. Cruden D.M. (1977): Describing the size of discontinuities. *Int. J. Rock Mech. and Min. Sci.*, No 14, pp. 133-137.
459. Cumming J.D. and Wicklund A.P. (1980): Diamond Drill Handbook, 3rd edn, 2nd revision. J.K. Smit, Ontario, Canada.
460. Cummings R.A., Kendorski F.S. and Bieniawski Z.T. (1982): Caving rock mass classification and support estimation. U.S. Bureau of Mines Contract Report #J0100103. Chicago: Engineers International Inc.
461. Cundall P.A. (1971): A computer model for simulating progressive large scale movements in blocky rock systems. In. *Rock Fracture*, Proc. Symp. ISRM, Nancy 1, Paper 2-8.
462. Cundall P.A., Potyondy D.O. and Lee C.A. (1996): Micromechanics-based models for fracture and breakout around the Mine-by tunnel. In Proc. Int. Conf. on Deep Geological Disposal of Radioactive Waste, Winnipeg (Ed. J. B. Martino and C. D. Martin), pp. 113–122. Canadian Nuclear Society, Toronto.
463. Daeman J.J.K. (1977): Problems in tunnel support mechanics. *Underground Space* 1, 163-172.
464. Dalmalm T., Eriksson M., Janson T., Brantberger M., Slunga A., Delin P. and Stille H. (2000): *Injekteringsförsök vid Södra Länkens bergtunnlar — Sammanfattande rapport* (in Swedish). Rapport 3075. Inst. for Jord- och bergmekanik, Royal Institute of Technology (KTH), Stockholm.
465. Dalmalm T. (2004): Choice of grouting method for jointed hard rock based on sealing time predictions. Ph.D. thesis, Royal Institute of Technology, Stockholm.
466. Dalmalm T. and Roslin M. (2007): Tryckfall efter injektering beroende av geologin (in Swedish). Proc. to the Rock Mechanics Meeting, Stockholm, ISSN 0281-4714, pp 101-116.
467. Dalton J.C.P. and Hawkin, P.G. (1989): Fields of stress — some measurements of in-situ stress in a meadow in the Cambridgeshire countryside. *Ground Engineering*, 15(4), pp. 15- 23.
468. Dana J.D. and Hurlbut C.S.jr. (1959): Dana's manual of mineralogy. John Wiley & sons, New York, 609 p.
469. Dann R E., Hartwig W.P. and Hunter J.R. (1964): Unlined tunnels of the Snowy Mountains Hydro-Electric Authority, Australia. *ASCE Power Journal*, Paper No. 4071, October 1964, pp. 47-79.
470. Dann H.E. (1965): Discussion of "Rocktrap experience in unlined tunnels" by Mattimoe et al. (1964), *ASCE Power Journal*, May 1965, pp. 115-118.
471. Darling P. (1991): Tunnelling through trouble in the Rockies. *Tunnels & Tunnelling*, March 1991, pp. 36-38.

472. Darracott B.W. and McCann D. (1986): Planning geophysical surveys in A.B. Hawkins (ed.) Site Investigation Practice: Assessing BS 5930, Eng. Geol. Special Pub. No. 2, Geological Society, pp. 85-89.
473. Da Silveria A.F., Rodrigues F.P., Grossman N.F. and Mendes F. (1966): Qualitative characterisation of the geometric parameters of jointing in rock masses. Proc. 1st Congress Int. Soc. Rock. Mech., Lisbon, pp. 225-233.
474. Davis W.L. (1977): Initiation of cablebolting at West Coast Mines, Rosebury. Proc. Aust. Inst. Min. Metall. conf., Tasmania, pp. 215-225.
475. Dawson, R.F. and Barber, E.S. (1956): Discussion on Expansive Clays. Trans. Am. Soc. of Civ. Eng. Vol.121, p. 664, p. 669.
476. Deane A. (1994): Application of NATM to design of underground stations in London clay. Tunnelling 94, Institution of Mining and Metallurgy, London, pp. 87 - 97, published by Chapman and Hall 1994
477. Deane A. and Bassett R. H. (1995): The Heathrow Express trial tunnel. Proc. Institution of Civil Engineers – Geotechnical Engineering, 113, July 1995, pp. 144 - 156.
478. Dearman W.R. (1974): The characterisation of rock for civil engineering practice in Britain. Centenaire de la Societe Geologique de Belgique, Colloque Geologic de l'Ingenieur, Liege, pp. 1 - 75.
479. Dearman W.R. and Fookes P.G. (1974): Engineering geological mapping for civil engineering practice. Quart. J. Engn. Geol., Vol 7, pp. 223 - 256.
480. Dearman W.R. Baynes F.J. and Pearson R. (1977): Geophysical detection of disused mineshafts in the Newcastle-Upon-Tyne area, N.E. England. Q. J. Eng. Geol., 10 (3), pp. 257 - 270.
481. Dearman W.R. (1991): Engineering geological mapping. Butterworth - Heinemann Ltd., Oxford.
482. Dearman, W.R., Baynes, F.J. and Irfan, T.Y. (1978): Engineering grading of weathered granite, Eng. Geol., 12, pp. 345-374.
483. De Marsily G. (1986): Quantitative Hydrogeology. Groundwater hydrology for engineers. Academic Press, Inc., San Diego.
484. Deere D.U. (1963): Technical description of rock cores for engineering purposes. Felsmechanik und Ingenieurgeologie, Vol. 1, No 1, pp. 16-22.
485. Deere D.U. (1964): Technical description of rock cores for engineering purposes. Rock Mechanics and Engineering Geology, 1(1), pp. 17-22.
486. Deere D.U. (1968): Geological considerations. Rock Mechanics in Engineering Practice, eds. K.G.Stagg and O.C.Zienkiewicz. John Wiley & Sons, London 1968, pp. 1-20.
487. Deere D.U. (1971): The foliation shear zone - an adverse engineering geologic feature of metamorphic rocks. Boston Soc. Civ. Engrn., Vol 60, No. 4, pp. 163-176.
488. Deere D.U. (1980): Geological considerations. In Rock Mechanics in Engineering Practice (Ed. K.G. Stagg and O.C. Zienkiewicz), pp. 1–20. John Wiley & Sons, London.
489. Deere D.U. (1983): Unique geotechnical problems at some hydroelectric projects", Proc. 7th Pan Am. Soil Mechanics Conference, Vancouver, 1983, pp. 865-888.

490. Deere D.U. (1989): Rock quality designation (RQD) after 20 years. U.S. Army Corps Engrs. Contract Report GL-89-1. Vicksburg, MS: Waterways Experimental Station.
491. Deere D.U. and Miller R.P. (1966): Engineering classification and index properties for intact rock. Technical Report No. AFWL-TR-65-116, Air Force Weapons Lab., Kirtland Air Force Base, New Mexico, 299 pp.
492. Deere, D.U. and Miller, D.W., (1967) The rock quality designation (RQD) index in practice, Classification Systems for Engineering Purposes. ASTM STP, American Society for Testing and Materials, Philadelphia, pp.91-101.
493. Deere D.U., Hendron A.J., Patton F.D. and Cording E.J. (1967): Design of surface and near surface construction in rock. In Failure and breakage of rock, proc. 8th U.S. symp. rock mech., (ed. C. Fairhurst), pp. 237-302. New York: Soc. Min. Engrs, Am. Inst. Min. Metall. Petrolm Engrs.
494. Deere D.U., Peck R.B., Monsees J.E. and Schmidt B. (1969): Design of tunnel liners and support system. Office of high speed ground transportation, U.S. Department of transportation. PB 183799.
495. Deere D.U., Merritt A.H. and Cording E.J. (1974): Engineering geology and underground construction. General report, 2nd Intn. Congr. of Int. Assoc. of Engn. Geol., Sao Paulo, Brazil, 1974, pp VII-GR. pp. 1-26.
496. Deere D.U. and Deere D.W. (1988): The rock quality designation (RQD) index in practice. In Rock classification systems for engineering purposes, (ed. L. Kirkaldie), ASTM Special Publication 984, pp. 91-101. Philadelphia: Am. Soc. Test. Mat.
497. DeHart R.C. (1982): Design of large diameter shaft liners. Short Course on Current Technology in Drilled Shaft Design and Technology, Anaheim, California, 1982.
498. Deinard M., Prinz H. and Zeidler K. (1991): Variations on a NATM theme. Tunnels and Tunnelling November 1991, pp. 49 - 51.
499. Deklotz, E.J. et. al. (1966): Anisotropy of a schistose gneiss. Proc. 1st Congr. Int. Soc. Rock Mech. Lisboa, pp. 465 - 470.
500. Denkhaus H.G. (1965): Strength of rock material and rock systems. Int. J. Rock Mech. Mining Sci., Vol 2, pp. 111-126.
501. Denoor G., Rambaud G. and Tascher C. (1962): The Kurobe IV penstock. Water Power, February, 1962, pp. 62-69, March 1962, pp. 105-108.
502. Dershowitz W.S., Einstein H.H. (1988): Characterizing rock joint geometry with joint system models. Rock Mech. and Rock Engn., Vol 21, 1988, pp. 21 - 51.
503. Dershowitz W. and Doe T. (1997): Analysis of Heterogeneously Connected Rock Masses By Forward Modelling of Fractional Dimension Flow Behaviour, Int. J. Rock Mech. & Min. Sci. 34:3-4, Paper No. 061, Elsevier.
504. Dershowitz B., Winberg A., Hermanson J., Byegård J., Tullborg E.L., Andersson P. and Mazurek M. (2003): Äspö Task Force, Task 6C. A Semi-Synthetic Model of Block Scale Conductive Structures at the Äspö Hard Rock Laboratory. SKB IPR-03-13, Svensk Kärnbränslehantering AB.

505. Detournay E. and John C.M.St. (1988). Design charts for a deep circular tunnel under non-uniform loading. *Rock Mech. and Rock Engin.*, 21(2): pp.119–137.
506. Deutsch C.V. and Journel A.J. (1992): Geostatistical software library and user's guide: Oxford University press, New York, 340 p.
507. Dick R.C. (1975): In situ measurement of rock permeability: Influence of calibration error on test results. *Bull. Assoc. Eng. Geol.*, 12 (3), pp. 193-211.
508. Diederichs M.S., Pieterse E., Nosé J. and Kaiser P.K. (1993): A model for evaluating cable bond strength: an update. *Proc. Eurock '93*, Lisbon.
509. Diederichs M.S. and Kaiser P.K. (1999): Tensile strength and abutment relaxation as failure control mechanisms in underground excavations. *Int. J. Rock Mech. Min. Sci.*, 36(1): pp. 69–96.
510. Diederichs M.S. (1999): Instability of Hard Rockmasses: The Role of Tensile Damage and Relaxation. Ph.D. thesis, Dept. of Civil Engineering, University of Waterloo, Waterloo, Canada.
511. Diederichs M.S. (2003): Rock fracture and collapse under low confinement conditions. *Rock Mech. Rock Engr.*, 36 (2003), No. 5, pp. 339–381.
512. Diederichs M.S., Kaiser P.K. and Eberhardt E. (2004): Damage initiation and propagation in hard rock tunnelling and the influence of near-face stress rotation. *Int J Rock Mech Min Sci* 41, pp. 785-812.
513. Diederichs M.S. (2007): The 2003 Canadian Geotechnical Colloquium: Mechanistic validation and practical application of damage and spalling prediction criteria for deep tunnelling. *Can Geotech J* 44 (9), pp. 1082-1116.
514. Diederichs M.S., Carvalho J.L. and Carter T.G. (2007): A modified approach for prediction of strength and post yield behaviour for high GSI rockmasses in strong, brittle ground. *Proc. 1st Can-US Rock Symposium*. Vancouver, pp. 277-286.
515. Diederichs M.S., Carter T. and Martin D. (2010): Practical Spall Predictions in Tunnels. *Proceedings World Tunnel Congress*, Vancouver 2010.
516. Dietl, B. and Tarkoy, P.J (1973): A study of rock hardness and tunnel boring machine advance rates in Manhattan schist. *Tunneling Technology Newsletter*, U.S. National Committee on Tunneling Technology, pp. 4-9.
517. Dimitrijevic M.D. & Petrovic R.S. (1965): The use of sphere projection in geology. *Geoloski Zavod, Ljubljana*.
518. Dines K.A. and Lytle R.J. (1979): Computerised geophysical tomography. *Proc. IEEE*, 67 (7), pp. 1064-1073.
519. Dix C.H. (1939): Refraction and reflection of seismic waves II: Discussion of the physics of refraction prospecting. *Geophysics*, 4 (4), pp. 238-241.
520. Dobrin M.B. (1960): *Introduction to Geophysical Prospecting*, McGraw-Hill, New York, 446 p.
521. Dohr G. (1975): *Applied Geophysics. Introduction to Geophysical Prospecting*, Pitman, London.
522. Donaldson Associates Limited (2006): Dounreay Shaft D1225, SEPA, Assessment of technical proposals for shaft isolation project. http://www.sepa.org.uk/pdf/radioactivity/dounreay/Dounreay_shaft_technical_assessment.pdf

523. Donath, F.A. (1961): Experimental study of shear failure in anisotropic rocks. *Bull. Geol. Soc. Am.* Vol. 72, pp. 985 - 990.
524. Donath, F.A. (1972): Effects of cohesion and granularity on the deformational behaviour of anisotropic rock. *Geol. Soc. Amer., Memoir* 135, pp. 95-128.
525. Donath, F.A. (1964): Strength variations and deformational behaviour in anisotropic rock. In *State of Stress in the Earth's Crust*, W.R. Judd, ed., Elsevier, New York, pp. 281-297.
526. Dorsten V., Frederick F.H. and Preston H.K. (1984): Epoxy coated seven-wire strand for prestressed concrete. *Prestressed Concrete Inst. J.* 29(4), pp. 1-11.
527. Doruk P. (1991): Analysis of the laboratory strength data using the original and modified Hoek-Brown failure criteria. MSc thesis, Dept. Civil Engineering, University of Toronto.
528. Douglas T.H., Arthur L.J. and Wilson W. (1984): Dinorwig power station - observations relating to monitoring. *Proc. ISRM Symposium, Design and Performance of Underground Excavations*, Cambridge, U.K., September 1984, pp. 409-413.
529. Dowding C.H. and Miller J.B. (1975): Comparison of predicted and encountered geology for seven Colorado tunnels. Report prepared for NSF, MIT Department of Civil Engineering, R 75-6, 1975.
530. Dowding C.H. (1978): Future challenges in site characterization. *Site Characterization and Exploration, NSF Site Characterization Workshop*, ASCE.
531. Draganovic A. (2007): Separations- och filtreringsstabilitet hos cementbaserade injekteringsbruk. Lic. thesis, Royal Institute of Technology (KTH), Stockholm.
532. Du S., Hu Y. and Hu X. (2009): Measurement of Joint Roughness Coefficient by Using Profilograph and Roughness Ruler. *Journal of Earth Science*, vol. 20, No. 5, 890–896.
533. Duddeck H. (ed.) (1988): Guidelines for the design of tunnels. ITA Working Group on General Approaches to the Design of Tunnels. *Tunneling and Underground Space Technology* 3, pp. 237-249.
534. Dumbleton M.J. and West G. (1970): Report LR 369, Air-photograph Interpretation for Road Engineers in Britain. Transport and Road Research Laboratory, Crowthorne, Berks.
535. Dumbleton M.J. and West G. (1976): Preliminary sources of information for site investigations in Britain. *Transport and Road Research Laboratory Report LR 403 (revised edition)*, Crowthorne, Berks.
536. Duncan J.M. and Goodman R.E. (1968): Finite element analysis of slopes in jointed rocks. U.S. Army corps of Engineers Report TR. 1968. No.1-68.
537. Duncan J.M. and Chang C.Y. (1970): Non-linear analysis of stress and strain in soil. *J. Soil Mech. Found. Engr.*, ASCE 1970, 5, pp. 1629-1652.
538. Duncan N. and Hancock K.E. (1966): The concept of contact stress in the assessment of the behaviour of rock masses as structural foundations. *Proc. 1st Congr. Int. Soc. Rock Mech.*, Lisbon, Volume 2, pp. 487-492.
539. Duncan N. (1969): *Engineering Geology and Rock Mechanics*. Volume 1, Leonard Hill, London.

540. Duncan Fama, M.E. (1993): Numerical modelling of yield zones in weak rocks. In Comprehensive rock engineering, (ed. J.A. Hudson) 2, pp. 49-75. Oxford: Pergamon.
541. Dunn C.P. (1923): Elastic stresses in the rock surrounding pressure tunnels. ASCE Transactions, Paper No. 1527, including discussion 1923, pp. 1384-1411.
542. Duvall W.I. and Fogelson D.E. (1962): Review of criteria for estimating damage to residences from blasting vibrations. U.S. Bur. Mines Rep. Invest. 5986. 19 p.
543. Early K.R. and Dyer K.R. (1964): The use of a resistivity survey on a foundation site underlain by karst dolomite. Géotechnique, 14 (4), pp. 341-348.
544. Eastwood M.T. and DeWitt M.J. (1982): Concrete waterway linings for the Drakensberg pumped storage scheme. The Civil Engineer in South Africa, August 1982, pp. 435-447.
545. Eberhardt E., Stead D., Stimpson B. and Read R.S. (1998): Identifying crack initiation and propagation thresholds in brittle rock. Canadian Geotech J 35, pp. 222-233.
546. Eckenfelder G. (1952): Spray hydro-electric power development. The Engineering Journal, April, 1952, pp. 3-19.
547. Edelbro C. (2003): Rock mass strength – A review. Technical Report. Luleå University of Technology, 132 p.
548. Edelbro C. (2003): Rock Mass strength - A Review. Technical report 2003:16, Luleå University of Technology, Division of rock mechanics. ISSN: 1402-1536.
549. Edelbro C. (2004): Evaluation of rock mass strength criteria. Licentiate thesis 2004:72. Luleå University of Technology. ISSN: 1402-1757.
550. Edelbro C. (2006): Strength of hard rock masses: a case study. Technical report. Division of Mining and Geotechnical Engineering, Luleå University of Technology, available online: epubl.luth.se/ 1402-1536/2006/13.
551. Edelbro C. (2007): Observations and modelling of failure of hard rock masses. In: Proceedings Deep Mining 07: 4th international seminar on deep and high stress mining, Perth, Australia, pp. 81-94.
552. Edelbro C., Sjöberg J. and Nordlund E. (2007): A quantitative comparison of strength criteria for hard rock masses. Tunnelling and Underground Space Technology22 (1), pp. 57-68.
553. Edelbro C. (2008): Strength of hard rock masses: a case study, version 2. Technical report. Luleå University of Technology. ISSN:1402-1536.
554. Edelbro C. (2008): Different approaches for simulating failure in two hard rock mass cases — a parametric study Rock Mech. and Rock Eng.
555. Edelbro C. (2008): Numerical modelling of observed fallouts in hard rock masses using an instantaneous cohesion-softening friction-hardening model. Tunnelling and Underground Space Technology.
556. Edelbro C. and Sandström D. (2009): Interpretation of failure and fallouts based on numerical modelling of an underground mine stope. Submitted to the Sinorock 2009, ISRM International Symposium on Rock Mechanics. 19-22 May 2009.

557. Edvardsson S. and Saetren B. (1985): Excavation and leakage control of unlined air cushion surge chamber at the Osa hydroelectric project. Norwegian Hydropower Tunnelling, Norwegian Soil and Rock Engineering Association, Publication No. 3, Tapir, Trondheim, 1985.
558. Ehrenberg J. (1933): Geräte zur Entnahme von Bodenproben für bodenphysikalischer Untersuchungen. Bautechnik, 11, pp. 303-306.
559. Einstein H.H. (1979): Tunneling in Swelling Rocks. Underground Space, Vol. 4, No.1.
560. Einstein H. (1989): Suggested methods for laboratory testing of argillaceous swelling rocks. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 26, No.5, pp. 415-426.
561. Einstein H.H. (1991): Observation, quantification and judgement: Terzaghi and engineering geology. J. Geotech. Engr., Vol. 117, No. 11, pp. 1772-1778.
562. Einstein H.H. (1993): Swelling rock. ISRM News, No. 2, pp. 57-60.
563. Einstein, H.H. (Coordinator) (1994a): Suggested methods for rapid field identification of swelling and slaking rocks. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 31, No.5, pp. 547-550.
564. Einstein, H. H. (Coordinator) (1994b): Comments and recommendations on design and analysis procedures for structures in argillaceous swelling rock. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 31, No.5, pp. 535-546.
565. Einstein H. H. (1994c): Risk analysis for the Adler tunnel. Tunnels and Tunnelling, November 1994, pp. 28 - 30.
566. Einstein H.H. (1996): Tunnelling in Difficult Rock – Swelling Behaviour and Identification of Swelling Rocks. Rock Mechanics and Rock Engineering 29 (1996), No. 3, pp. 113–124.
567. Einstein H.H. and Hirschfeld R.C. (1973): Model studies on mechanics of jointed rock. J. Soil Mechs. Foundns, Div., ASCE, Vol. 99, No. SM3, pp. 229-248.
568. Einstein H.H. and Bischoff N. (1975): Design of Tunnels in Swelling Rocks, *Proc. 16th Symposium on Rock Mechanics*, University of Minnesota, Minneapolis, MN, pp. 185-195.
569. Einstein H., Steiner W. and Baecher G.B. (1979): Assessment of empirical design methods for tunnels in rock. RETC 1979, pp. 683-705.
570. Einstein H.H. and Baecher G.B. (1982): Probabilistic and statistical methods in engineering geology. I. Problem statement and introduction to solution. Rock Mechanics, Supp. 12, pp. 47-61.
571. Einstein H.H. and Baecher G.B. (1983): Probabilistic and statistical methods in engineering geology. Rock Mechanics, Vol. 16, pp. 39-72.
572. Einstein H.H.; Bobet A. and Aristorenas, G. (1995): Feasibility Study Opalinuston. NAGRA, Report NIB. 95-61. Volumes A through D.
573. Einstein H. and Meyer T. (1999): Müller lecture: Puzzles in rock. Proc. 9th Int. Congress on Rock Mechanics, Paris, 1999. Vol. 3, pp. 1707–1740.
574. Eisenstein Z., Kuwajima F. M. and Heinz H. K. (1991): Behaviour of shotcrete tunnel linings. Proc. 10th Rapid Excavation and Tunnelling Conference (Seattle) June 1991. Published by Society of Mining Engineers of AIME, Chapter 4, pp. 46 - 57.
575. Eklund D. (2005): Penetrability of cementitious injection grouts. Ph.D. thesis, Royal Institute of

Technology (KTH), Division of Soil and Rock Mechanics, Stockholm.

- 576. Emmelin A., Eriksson M. and Fransson A. (2004): Characterisation, design and execution of two grouting fans at 450 m level, Äspö HRL. SKB R-04-58, Svensk Kärnbranslehantering AB.
- 577. Emsley S., Olsson O., Steinberg L., Alheid H.-J. and Falls S. (1997): ZEDEX – A study of damage and disturbance from tunnel excavation by blasting and tunnel boring. SKB Technical report 97-30, 198 p.
- 578. Endersbee L.A. and Hofto E.O. (1963): Civil engineering design and studies in rock mechanics for Poatina underground power station, Tasmania. J. Instn. Engrs. Australia 35, pp. 187- 209.
- 579. Engelder T. and Sbar M.L. (1984): Near-surface in situ stress: introduction. J. Geophys. Res. 89, pp. 9321-9322. Princeton, NJ: Princeton University Press.
- 580. Engels W. and Aubel F. (1987): Tunnelling under difficult ground conditions; collapse and restoration of the Richthof Tunnel. Bochum Conference Proc. 1987, pp. 111 - 122.
- 581. ENR (1913): The Failure of the Sand Canyon inclined pressure tunnel, Los Angeles, California", Engineering News-Record, Vol. 69, No. 23, June 5, 1913, pp. 1198-1200.
- 582. ENR (1985): Guatemala power tunnel to be repaired by 1986", Engineering News-Record, January 3, 1985, pp. 19-20.
- 583. ENR (1986): Inscrutable rock tests power tunnel grouters. Engineering News Record, May 1, 1986, pp. 22-23.
- 584. EPC (1996): Open learning in engineering education. Occasional paper No. 8 Engineering Professors' Council. <http://www.epc.ac.uk/uploads/occasionalpapers/op08.pdf>.
- 585. Eriksson A. and Palmqvist K. (1997): Experiences from grouting of the Lundby tunnel, proc. Bergmekanikdag 1997, SveBeFo (in Swedish, summary in English).
- 586. Eriksson C. and Krauland N. (1975): Rock mechanical views regarding the slide in the hanging wall in the Långsele mine. Internal note Boliden, Sweden, 15 p.
- 587. Eriksson M., Stille H. and Andersson J. (2000): Numerical Calculations for prediction of grout spread with account for filtration and varying aperture . Tunnelling and Underground Space Technology, Vol. 15, No. 4, pp. 353-364.
- 588. Eriksson M. (2002): Prediction of grout spread and sealing effect. A probabilistic approach. Ph.D. thesis, Royal Institute of Technology (KTH), Division of Soil and Rock Mechanics, Stockholm.
- 589. Eriksson M. and Stille H. (2003): A Method for Measuring and Evaluating the Penetrability of Grouts. Grouting and Ground Treatment Conference, New Orleans. Geotechnical special publication No. 120, pp. 1326-1337.
- 590. Eriksson M., Friedrich M. and Vorschulze C. (2004): Variations in Rheology and Penetrability of Cement-Based Grouts — An Experimental Study. Cement and Concrete Research 34 (2004), pp. 1111-1119.
- 591. Eriksson M. and Stille H. (2005): Cement grouting of hard jointed rock. (in Swedish). SveBeFo Stockholm, 2005, 157 p.

592. Eshwaraiah H.V. and Upadhyaya V.S. (1990): Influence of rock joints in performance of major civil engineering structures. Proc. of Mechanics of Jointed and Faulted Rock. Balkema publ. pp. 951-968.
593. Essex R.J. (2007): Geotechnical Baseline Reports for Construction – Suggested Guidelines, ASCE Publ., 62p.
594. Ettel E. (1991): NATM forward stress distribution. 1991 STUVA (Koln) Conference at Dusseldorf, Germany.
595. European Prestandard ENV 1997-1:1994: Eurocode 7: Geotechnical Design – Part 1: General rules. European Committee for Standardization, Central Secretariat, Brussels, October 1994, 123 p.
596. Ewan V.J. and West G. (1981): Reproducibility of joint orientation measurements in rock. TRRL Report SR 702, Transport and Road Research Laboratory, Crowthorne, Berks.
597. Ewan V.J., West G. and Temporal J. (1981): Reproducibility of joint spacing measurements in rock. TRRL Report LR 1013, Transport and Road Research Laboratory, Crowthorne, Berks.
598. Ewan V.J., West G. and Temporal J. (1983): Variation in measuring rock joints for tunnelling. Tunnels & Tunnelling, April 1983, pp. 15 -18.
599. Ewy R.T. and Cook N.G.W. (1990): Deformation and fracture around cylindrical openings in rock. Parts I & II. Int. J. Rock Mech. Min. Sci. Geomech. Abstr. 27, pp. 387-427.
600. Fabjanczyk M.W. (1982): Review of ground support practice in Australian underground metalliferous mines. Proc. Aus. Inst. Min. Metall. conf., Melbourne, pp. 337-349. Melbourne: Aust. Inst. Min. Metall.
601. Fahlquist F.E. (1941): New methods and technique in subsurface explorations. J. Boston Soc. Civ. Eng., 28, pp. 144-160.
602. Fairhurst C. and Cook N.G.W. (1966): The phenomenon of rock splitting parallel to a free surface under compressive stress. Proc. 1st. Cong. ISRM, Lisbon 1, pp. 687-692
603. Fairhurst C. (1988): Foreword. Int. J. Rock Mech. Min. Sci & Geomech. Abstr., Vol. 25, No. 3. pp. v - viii.
604. Fairhurst C. (1993): Analysis and design in rock mechanics–The general context. In Comprehensive Rock Engineering – Rock Testing and Site Characterization (Ed. J. A. Hudson), vol. 2, pp. 1–29. Pergamon Press, Oxford.
605. Faria Santos C. and Bieniawski Z.T. (1989): Floor design in underground coal mines. Rock Mechanics and Rock Engineering 22, 1989, pp. 249-271.
606. Fardin N. (2003): The effect of scale on the morphology, mechanics and transmissivity of single rock fractures (PhD thesis). Division of Engineering Geology, Royal Institute of Technology, Stockholm, Sweden ; 2003.
607. Fardin N., Feng Q. and Stephansson O. (2004): Application of a new in situ 3D laser scanner to study the scale effect on the rock joint surface roughness. Int. J. Rock. Mech. Min. Sci., (41)2, 329-335.
608. Farmer I.W. (1977): Rock engineering - applications in tunnelling. Tunnels & Tunnelling, July 1977, pp. 84-88.

609. Farmer I.W. and Shelton P.D. (1980): Review of underground rock reinforcement systems. *Trans. Instn Min. Metall. (Sect. A: Min. industry)* 89, pp. A68-83.
610. Farmer I.W. and Kemeny J.M. (1992): Deficiencies in rock test data. *Proc. Int. Conf. Eurock '92*, Thomas Telford, London, pp. 298-303.
611. Farrow J. P. and Claye P. M. (1994): Civil engineering and tunnel design. Special Issue No. 2 of the *Proc. Institution of Civil Engineers*, London, Volume 102, pp. 23 - 33.
612. Feat-Smith I. (1982): Survey of rock tunnelling machines available for mining projects. *Trans. Instn Min. Metall. (Sect. A: Min. industry)* 91, pp. A23-31.
613. Fecker E. and Rengers N. (1971): Measurement of large scale roughness of rock planes by means of profilograph and geological compass. *Rock Fracture, Proc. of Int. Symp. Rock Mech.*, Nancy, Paper I.18.
614. Fecker E. (1995): Untersuchungen von Schwellvorgängen und Erprobung von Auskleidungskonzepten beim Freudensteintunnel. *Taschenbuch Tunnelbau 1996*, pp. 165–182. Essen: Verlag Glückauf.
615. Fecker, E. (1996): Untersuchungen von Schwellvorgängen und Erprobung von Auskleidungskonzepten beim Freudensteintunnel. *Taschenbuch Tunnelbau 1996*, pp. 165–182. Essen: Verlag Glückauf, 1995.
616. Feder G. (1986): 10 Jahre Gebirgsmechanik aus dem Institut für Konstruktiven Tiefbau der Montanuniversität Leoben (in German). *Berg und Hüttenmännische Montatshefte vereinigt mit Montan-Rundschau*, Jahrgand 131, heft 2, pp. 27-41.
617. Federal Highways Administration. (1993): Rockfall Hazard Rating System, Participants Manual for NHI Course No. 130220. Publication No. FHWA SA-93-057.
618. Fell R. (1994): Landslide risk assessment and acceptable risk. *Canadian Geotechnical Journal*. Vol. 31. pp. 261-272
619. Feng Q., Fardin N., Jing L., and Stephansson O. (2003): A new method for in-situ non-contact roughness measurement of large rock fracture surfaces. *Rock Mechanics and Rock Engineering*, (36)1, 3-25.
620. Fennel D. (1988): Investigation into the King's Cross Underground Fire. Dept. of Transport. London.
621. Fenner R. (1938): Untersuchungen zur Erkenntnis des Gebirgsdruckes. *Glukauf* 74, pp. 681-695, pp. 705-715.
622. Ferrero A.M. and Giani G.P. (1990): Geostatistical description of the joint surface roughness. *31st U.S. Symposium on Rock Mechanics (USRMS)*, A.A. Balkema, Rotterdam.
623. FIDIC Contracts, 1999–2000. International Federation of Consulting Engineers, Lausanne.
624. Fischer W.A. (1958): Colour aerial photography in photogeologic interpretation. *Photogr. Engng.* 24, pp. 545-49.
625. Fischer W.A. (1962): Colour aerial photography in geologic investigations. *Photogr. Engng.*, 28 (1), pp. 133-139.

626. Fisher P. and Banks D. (1978): Influence of the regional geologic setting on site geologic features. Proc. Site Charact. and Expl. ASCE, New York, pp. 163-185.
627. Fishman Yu.A. (2008): Features of compressive failure of brittle materials. Int. J. Rock Mech. Min. Sci., 45, pp. 993-998.
628. Fjällberg L. and Lagerblad B. (2003): Cementbaserade injekteringsmedel — olika typer, cementreaktioner, bindetid och flytförmåga (in Swedish). CBI rapport 1:2003, Cement och Betonginstitutet, Stockholm.
629. Flückiger A., Nüesch R. and Madsen F.T. (1994): Anhydritquellung. In Kohler (Hrsg.): Berichte zur Jahrestagung Regensburg der Deutschen Ton- und Tonmineralgruppe e.V. 1994. pp. 146–153.
630. Fookes P. G. and Parrish D. G. (1969): Observations in small scale structural discontinuities in the London clay, and their relationship to regional geology. Quarterly Journal of Engineering Geology, 1, No. 4, June 1969, pp. 217 - 24.0
631. Fookes P.G., Dearman W.R. and Franklin J.A. (1971): Some engineering aspects of rock weathering with field examples from Dartmoor and elsewhere. Q. J. Eng. Geol., 4, pp. 139-185.
632. Fookes P.G. and Sweeney M. (1976): Stabilisation and control of local rockfalls and degrading of slopes. Quarterly J. Engineering Geology. Vol. 9, pp. 37-55.
633. Forrest T. and Gay I. (1988): First experience with the New Austrian Tunnelling Method in the United States. Felsbau 6, 1988, No. 1, pp. 30 - 38.
634. Foster, M.D. (1954): The Relation between Composition and Swelling in Clays. Clays and Clay Minerals no.3 (1954), p. 205.
635. Fossum A.F. (1985): Effective elastic properties for a randomly jointed rock mass. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr. 1985; 22, pp. 467-470.
636. Fourmaintraux, D. (1976): Characterization of Rocks: Laboratory Tests, Chapter IV in La Mécanique des Roches Appliquée aux Ouvrages de Génie Civil, by Marc Panet et al., ENPC, Paris.
637. Fox J.L. (1967): Steels for hydroelectric applications. Civil Engineering, ASCE, September, 1967, pp. 61-63.
638. Franklin J.A. (1970): Observations and tests for engineering description and mapping of rocks. Proc. 4th Cong., ISRM, Belgrade 1970, vol. 1, paper 1-3, 6 p.
639. Franklin J.A. (1975): Safety and economy of tunneling. Proc. 10th Can. Rock Mech. Symp., Queens Univ. Kingstone, pp. 27-53.
640. Franklin, J.A. (Coordinator) (1979): Suggested methods for determining water content, porosity, density, absorption and related properties and swelling and slake durability index properties. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 16, No.2, pp. 141-156.
641. Franklin, J.A. (1984): A ring swell test for measuring swelling and shrinkage characteristics of rock. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 21, No.3, pp. 113-121.
642. Franklin J.A. (1986): Size-strength system for rock characterization. In Application of rock characterization techniques in mine design, ed. M Karmis, AIME, New York, 1986, pp. 11 – 16

643. Franklin J.A. and Hoek E. (1970): Developments in triaxial testing equipment. *Rock Mech.* Vol. 2, pp. 223-228. Berlin: Springer-Verlag.
644. Franklin J.A., Broch E. and Walton G. (1971): Logging the mechanical character of rock. *Tran. Inst. Min. Metall.* A80, pp. A1-A9.
645. Franklin J.A. and Chandra R. (1972): The slake-durability test. *Int. J. Rock Mech. Min. Sci.* Vol. 9, pp. 325 – 341
646. Franklin J.A., Louis C. and Masure P. (1974): Rock material classification. *Proc. 2nd Int. Cong. Eng Geol.* IAEG, Sao Paulo, 1974, pp. 325 – 341.
647. Fransson A. (1999): Grouting predictions based on hydraulic tests of short duration: analytical, numerical and experimental approaches. Licentiate thesis, Chalmers University of Technology, Department of Geology, Gothenburg.
648. Fransson A. (2001): Characterisation of fractured rock for grouting using hydrogeological methods. Ph.D thesis, Chalmers University of Technology, Department of Geology, Gothenburg.
649. Fransson A. (2002): Nonparametric method for transmissivity distributions along bore holes. *Ground Water* 40(2), pp. 201-204.
650. Fransson A. and Gustafson G. (2006): Post excavation grouting: Inflow prognosis and design — suggested analyses, SveBeFo, Rapport 75, ISSN 1104-1773.
651. Franzén T. (1992): Shotcrete for underground support - a state of the art report with focus on steel fibre reinforcement. In *Rock support in mining and underground construction, proc. int. symp. rock support*, Sudbury, (eds P.K. Kaiser and D.R. McCreath), pp. 91- 104. Rotterdam: Balkema.
652. Franklin J.A. and Palassi M. (1993): Maximum Span and Stand-time of Underground Excavations, Proc. Conference on Mine Design, Kingston, pp. 443-453.
653. Fredriksen U. and Palmström A. (1982): Design and construction of a 20 m high rockmass cofferdam at Rånåsfoss Power plant. (In Norwegian). National conference Bergmekanikkdagen, Oslo 1982, pp. – 28.1 – 28.11.
654. Freeze R.A. and Cherry J.A. (1979): *Groundwater*. Prentice-Hall, Inc., Englewood Cliffs, NJ, 553 p.
655. Freeze A.R. and Cherry, J.A. (1979): *Groundwater*. Englewood Cliffs, NJ: Prentice-Hall, 604 p.
656. Friedrich M. and Vorschulze C. (2002): Investigation of Variations in Rheology and Penetrability of Cement-Based Grouts — with application on prediction of grouting works. Examensarbete 02/09, Royal Institute of Technology (KTH), Division of Soil and Rock Mechanics, Stockholm.
657. Funehag J. and Axelsson M. (2003): Hydrogeological Characterisation and Sealing of Narrow Fractures in Hard Rock — A Case Study. *RMZ-Materials and Geoenvironment*, Vol. 50, No. 1, pp. 121-124.
658. Funehag J. and Gustafson G. (2004): *Injecteringsförsök med Cembinder U22 i Hallandsås*. Publikation 2004:1, Division of GeoEngineering, Chalmers University of Technology, Gothenburg.
659. Funehag J. (2005): Grouting of hard rock with gelling liquids, field and laboratory studies of Silica sol. Licentiate thesis, Chalmers University of Technology, Division of GeoEngineering. Gothenburg.

660. Funehag J. and Gustafson G. (2005): Grouting with silica sol in the Törnskog tunnel-Grouting design for silica sol in full production. Report No. 2005:12, Division of GeoEngineering, Chalmers University of Technology, Goteborg.
661. Funehag J. (2007): Grouting of fractured rock with silica sol — Grouting design based on penetration length. Ph.D. thesis, Chalmers University of Technology, Division of GeoEngineering, Gothenburg.
662. Fry N. (1984): The field description of metamorphic rock. Geological Society of London Handbook, Open University Press, Milton Keynes, 110 p.
663. Fuller P.G. (1981): Pre-reinforcement of cut and fill stopes. In Application of rock mechanics to cut and fill mining, (eds O. Stephansson and M.J. Jones), pp. 55-63. London: Instn. Min. Metall.
664. Fuller P.G. (1983): The potential for support of long hole open stopes with grouted cables. Proc. 5th. Int. Cong. for Rock Mechanics, Melbourne 2 , pp. D39-D44. Rotterdam: Balkema.
665. Fuller P.G. (1984): Cable support in mining - a keynote lecture. In Rock bolting: theory and application in mining and underground construction, (ed. O. Stephansson), pp. 511-522. Rotterdam: Balkema.
666. Gamble, J.C. (1971): Durability Plasticity Classification of Shales and Other Argillaceous Rocks. Ph.D. Thesis, University of Illinois.
667. Gane P.G., Hales A.L. and Oliver H.A. (1946): A seismic investigation of Witwatersrand earth tremors. Bull. Seism. Soc. Am. 36 , pp. 49-80.
668. Gardener R. (1992): Seismic refraction as a tool in the evaliation of rock quality for dredging and engineering purposes: case studies. Proc. Intn. Symp. Eurock'92, Thomas Telford, London, pp. 153 - 158.
669. Garford Pty Ltd. (1990): An improved, economical method for rock stabilisation. 4p. Perth.
670. Garmo T. and Palmström A. (1988): The geological history of Norway. In Norwegian Tunnelling Today, 1988. Tapir Publishers, Trondheim, Norway, pp. 25 – 40.
671. Gartung E. and Bauernfeind P. (1993): Construction of adjacent tubes by NATM. Proc. 5th Congr. International Society for Rock Mechanics (Melbourne). Published by A. A. Balkema, April 1993, pp. D163 - 166.
672. GeoEng2000 workshop on classification systems: The reliability of rock mass classification used in underground excavation and support design. ISRM News, Vol. 6, No. 3, 2001. 2 p.
673. Geological Society of America (1963): Rock Colour Chart. Geological Society of America.
674. Geological Society of London (1970): The logging of rock cores for engineering purposes: Engineering Group Working Party Report. Q. J. Eng. Geol., 3 (1), pp. 1-24.
675. Geological Society of London (1972): The preparation of maps and plans in terms of engineering geology: Engineering Group Working Party Report. Q. J. Eng. Geol., 5(4), pp. 295-382.
676. Geological Society of London (1977): The description of rock masses for engineering purposes: Engineering Group Working Party Report. Q. J. Eng. Geol., 10 (4), 355—388.

677. Geological Society Engineering Group Working Party (1971): Report on the logging of rock cores for engineering purposes. Q. J. Engn. Geol., 3, pp. 1-24.
678. Geotechnical Engineering Office: Geoguide 1 (1984): Geotechnical manual for slopes. Civil engineering department, Hong Kong, 295 p.
679. Geotechnical Engineering Office: Geoguide 2 (1987): Guide to site investigations. Civil engineering department, Hong Kong, 365 p.
680. Geotechnical Engineering Office: Geoguide 3 (1988): Guide to rock and soil description. Civil engineering department, Hong Kong, 189 p.
681. Geotechnical Engineering Office (1992): Geoguide 4 (1992): Guide to cavern engineering. Civil engineering department, Hong Kong, 156 p.
682. Geotechnical Engineering Office: Geoguide 5 (1995): Guide to slope maintenance. Civil engineering department, Hong Kong, 92 p.
683. German National Committee for Tunnels (DAUB) (1987): Definition of NATM construction methods and their applications for sub-surface construction. Tunnel, edition 3/87, pp. 88 - 92.
684. Gerrard C.M. (1982): Elastic models of rock masses having one, two and three sets of joints. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr. 1982, 19, pp. 15 - 23.
685. Ghosh D.K. and Srivastava M. (1991): Point-load strength: An index for classification of rock material. Bull. Int. Ass. Engn. Geol., No. 44, pp. 27 - 33.
686. Gibson R.E. (1966): A note on the constant head test to measure soil permeability in situ. Géotechnique, 16, pp. 256-259.
687. Gibson R.E. (1970): An extension to the theory of the constant head in situ permeability test. Géotechnique, 20 (2), pp. 193-197.
688. Gillespie P.A., Walsh J.J. and Watterson J. (1992): Limitations of dimension and displacement data from single faults and the consequences for data analysis and interpretation. J. of Struct. Geol., Vol. 14, No. 10, pp. 1157 - 1172.
689. Gillott, J.E. (1975): Alkali-aggregate reactions in concrete, Eng. Geol., 9, pp. 303-326.
690. Given I.A. (1973): Mining engineering handbook. Society of Mining Engineers, vol. 1 1310 p., vol. 2 1360 p.
691. Glamheden R., Fälth B., Jacobsson L., Harrström J., Berglund J. and Bergkvist L. (2010): Counterforce Applied to Prevent Spalling. SKB TR-10-37, Svensk Kärnbränslehantering AB
692. Goel R.K., Jethwa J.L. and Paithankar A.G., 1995. Correlation between Barton's Q and Bieniawski's RMR - a new approach. Int. J. Rock Mech. Min. 33 (2), pp. 179–181 (Technical note).
693. Golder Associates (1981): Report 802-1571 to Canmet on “Prediction of Stable Excavation Spans for Mining at Depths below 1000 meters in Hard Rock”. Canmet Contract No.17SQ.23440-0-9020. (Authors Mathews et al.)
694. Golder Associates (2008): “Informe Final Geológico-Geotécnico, de Excavaciones y de Soporte Final del Proyecto de la Central Hidroeléctrica Hornitos”. Unpublished, prepared for Hidroeléctrica Guardia Vieja S.A. Report N° 0592403-IT-TC-010-Rev.0.

695. Golser J. (1979): Another view of the NATM. *Tunnels and Tunnelling*, March 1979, pp. 41.
696. Gomes Fernandez L.H. (1954): The Salamonde hydro electric scheme. *Water Power*, November, 1954, pp. 408-418; December, 1954, pp. 449-456.
697. Gomnaes P.C. and Palmström A. (1996): Creative use of the underground in Oslo, the capital city of Norway. *North American Tunneling '96*, pp. 785 – 793.
698. Gonano L.P. (1984): Long term prestress in concrete lined pressure tunnels. *Water Power and Dam Construction*, November 1984, pp. 28-33.
699. Gonano L.P. and Sharp, J.C. (1984): Design and prestress grouting of a concrete lined high pressure tunnel at Orakensberg. *Innovative Cement Grouting*. ACI, Publication SP-83, 1984, pp. 19-41.
700. Goodman R.E. (1970): The deformability of joints. Determination of the in-situ modulus of deformation of rock; Amer. Soc. Test & Mats., STP 477, pp. 174-196.
701. Goodman R.E. (1972): Measurement of rock deformability in boreholes. Proc. 10th U.S. Symp. Rock Mechanics, AIME, New York, pp. 523 – 545.
702. Goodman R.E. (1976): Methods of Geological Engineering in Discontinuous Rocks. West, New York.
703. Goodman R.E. and Shi G.H. (1985): Block theory and its application to rock engineering. Prentice-Hall, Englewood Cliffs, NJ
704. Goodman R.E. (1989): Introduction to rock mechanics. John Wiley & Sons, New York, 561 p.
705. Goodman R.E. (1993): Engineering geology. Rock in engineering construction. John Wiley & Sons, New York, 385 p.
706. Gordon J.L (1978): Design criteria for exposed hydro penstocks. *Canadian Journal of Civil Engineering*, Vol. 5, 1978, pp. 340-351.
707. Gosler L., Muller P. J. and Schramm J. M. (1980): The NATM; a special tunnelling conception and its application to poor rock. Proc. 'Geotech 80', Bombay, published by the Institution of Engineers of India 1980, Volume 1, pp. 333 - 345.
708. Gosler J. and Mussger K. (1989): New Austrian Tunnelling Method – contractual aspects. Proc. Intn. Tunnelling Symposium – 'Tunnelling under Difficult Conditions', Japan 1989. Published by Pergamon Press, pp. 387 - 392.
709. Gothäll R. (2006): Rock Mass Response during High Pressure Grouting. Lic. thesis, Royal Institute of Technology, Division of Soil and Rock Mechanics, Stockholm.
710. Graham P.C. (1976): Rock exploration for machine manufacturers. Proc. Symp. on Exploration for Rock Engineering, Johannesburg, pp. 173 -180.
711. Grainger P., McCann D.M. and Gallois R.W. (1973): The application of the seismic refraction technique to the study of the fracturing of the Middle Chalk at Mundford, Norfolk. *Géotechnique*, 23 (2), pp. 219-32.
712. Grasselli G. (2001): Shear strength of rock joints based on quantified surface description [Doctoral Thesis]. EPFL, Lausanne; 2001.

713. Grasselli G., Wirth J. and Egger P. (2002): Quantitative three-dimensional description of a rough surface and parameter evolution with shearing. *Int. J. Rock. Mech. Min. Sci.*, 39, 789–800.
714. Grasselli G. and Egger P. (2003): Constitutive law for the shear strength of rock joints based on threedimensional surface parameters. *Int. J. Rock Mech. Min. Sci.*, 40, 25–40.
715. Grasselli G. (2006): Manuel Rocha Medal recipient - Shear strength of rock joints based on quantified surface description. *Rock Mechanics and Rock Engineering*, (39)4, 295-314.
716. Grattan-Bellew P.E. and Eden W.J. (1975): Concrete deterioration and floor heave due to biogeochemical weathering of underlying shale. *Can. Geotech. J.*, 12, pp. 372-378.
717. Greensmith J.T. (1978): Petrology of the Sedimentary Rocks. Allen and Unwin, London.
718. Greenwald H.P., Howarth H.C. and Hartman I. (1939): Experiments on the strength of small pillars of coal in the Attsburg bed. U.S. Bureau of Mines Tech. Rep. No. 605.
719. Greenwood J.A, Tripp J.H. (1971): The contact of two nominally flat rough surfaces. *Proc. Instn. Mech. Engrs. 1971; 185 (48/71)*: pp. 625-633.
720. Greenwood J.A. and Williamson J.B. (1996): Contact of nominally flat surfaces. *Proc. Roy. Soc. Lond. Ser. A 1966; 295*: pp. 300-319.
721. Greminger M. (1982): Experimental studies of the influence of rock anisotropy on size and shape effects in point-load testing. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.* 19, pp. 241-246.
722. Griffith, A.A. (1921): The phenomenon of rupture and flow in solids. *Phil. Trans. Roy. Soc., London A221*, pp. 163-198.
723. Griffith A.A. (1924.): Theory of rupture. *Proc. 1st congr. applied mechanics*, Delft, pp. 55-63. Delft: Technische Bockhandel en Drukkerij.
724. Griffiths D.H. and King R.F. (1965): Applied Geophysics for Engineers and Geologists. Pergamon Press, Oxford.
725. Griggs D.T. (1936): Deformation of rocks under high confining pressures. *J. Geol.* 44, pp. 541-577.
726. Grim, R.E. (1953): Clay Mineralogy. McGraw-Hill, New York.
727. Grim, R.E. (1962): Applied Clay Mineralogy. McGraw-Hill, New York.
728. Grimstad E., Barton N., Lien R., Lunde J. and Löset F. (1986): Classification of rock masses related to stability in tunnels. New experience of the Q-method (in Norwegian). Norwegian annual national rock excavation conference (Fjellsprengningsteknikk - bergmekanikk – geoteknikk), pp. 30.1-30.18.
729. Grimstad E. and Barton N. (1988): Design and methods of rock support. Norwegian tunnelling today. Norwegian Soil and Rock Engineering Association, publ. no. 5, pp. 59-64.
730. Grimstad E. and Barton N. R. (1993): Updating of the Q-system for NMT. In International symposium on sprayed concrete, Fagernes, Norway. Norwegian Concrete Association, pp. 46–66.
731. Grimstad E. and Bhasin R. (1997): Rock support in hard rock tunnels under high stress. In Proc. Int. Symp. on Rock Support – Applied Solutions for Underground Structures, Lillehammer (Ed.

- E. Broch, A. Myrvang and G. Stjern), pp. 504–513. Norwegian Society of Chartered Engineers, Oslo.
732. Grob H. (1972): Schwelldruck am Beispiel des Belchentunnels, Sitzungsberichte. Int. Symp. für Untertagebau, Luzern, pp. 99-119.
733. Grob H. (1976): Swelling and heave in Swiss tunnels. *Bulletin Association of Engineering Geologists*, 13: 55-60.
734. Grov E. and Blindheim O.T. (1997): Choosing properties of sprayed concrete for different rock support applications. Int. Symp. on Rock Support, Applied solutions for underground structures. Lillehammer, Norway.
735. Grujic N. (1974): Ultrasonic testing of foundation rock. Proc. 4th ISRM Intn. Congr., Denver
736. Gu D. and Wang S. (1981): On the engineering geomechanics of rock mass structure. Bull. IAEG, No. 23, pp. 109-111.
737. Gumensky D.B. and Chu P.F. (1948): Design of steel-lined concrete pressure conduits. Civil Engineering, November 1948, pp. 42-43.
738. Guralnik D.B. (1980): Webster's new world dictionary. Second college edition, Simon and Schuster, New York, 1690 p.
739. Gustafson G. and Stille H. (1996): Prediction of grout ability from grout properties and hydrogeological data. *Tunnelling and Underground Space Technology*, Vol. 11, No. 3, pp. 325-332.
740. Gustafson G., Fransson A., Funehag J, and Axelsson M. (2004): Ett nytt angreppssatt för bergbeskrivning och analysprocess för injektering (in Swedish). *Väg- och Vattenbyggaren* 4, 2004.
741. Gustafson G. and Stille H. (2005): Stop criteria for cement grouting, *Felsbau* 23, Nr 3, pp. 62-68.
742. Gustafson G., Fransson A., Axelsson M. and Funehag J. (2007): Grouting strategies — requirements on grout strength and rheology.
743. Gutt W.H. and Harrison W.H. (1977): Chemical resistance of concrete. *Concrete*, 11 (5), 35-37.
744. Guyod H. (1964): Use of geophysical logs in soil engineering. American Society for Testing and Materials Symposium on Soil Exploration, Special Technical Publication No. 351, pp. 74-85.
745. Gysel, M. (ed.) (1995): Quell-Kolloquium Basel, April 21, 1995, Proceedings with Reprints and Preprints of presented material, Gysel & Preisig.
746. Haak A. (1987): Where are the limits of the new Austrian tunnelling method? Extracts from a discussion involving representatives from the National committees of Austria, Switzerland and the Federal Republic of Germany. *Tunnel* 3/87, pp. 126-128.
747. Habenicht H. (1979): Description of joint systems taken from drill cores (in German). *Rock Mechanics*, No. 11, pp. 217-242.
748. Habernicht H. (1989): NATM measuring for feedback. Consulting Engineer, edition of January 1989, pp. 46 - 50.
749. Haberfield C.M. and Johnston I.W. (1993): Factors influencing the interpretation of pressuremeter tests in soft rock. Proc. Symp. on Geotechnical Engineering of Hard Soils — Soft Rocks. Athens, Volume 1, Balkema, Rotterdam, pp. 525-532.

750. Hack H.R.G.K. and Price D.G. (1993): A rock mass classification system for the design and safety analysis of slopes. Proc. Int. Conf. Eurock '93, Balkema, Rotterdam, pp.803-810.
751. Hack R. (1996): Slope Stability Probability Classification SSPC. ITC publication n. 43, Technical University Delft & Twente University - International Institute for Aerospace Survey and Earth Sciences (ITC Enschede), Netherlands. pp. 258.
http://www.itc.nl/library/papers_1996/general/hack_slo.pdf
752. Hack R. (2002): An evaluation of slope stability classification. Keynote Lecture. Proc. ISRM Eurock'2002, Portugal, Madeira, Funchal, November 2002. Eds.: C. Dinis da Gama & L. Ribeira e Sousa. Publ. Sociedade Portuguesa de Geotecnica, Lisboa, Portugal. pp. 3- 32.
753. Hackman R.J. (1967): Time shadows, terrain and photo-interpretation. Professional Paper 575-B, US Geological Survey, pp. B 155-160.
754. Hagan T.N. (1980): Understanding the burn cut - a key to greater advance rates. Trans. Instn. Min. Metall. (Sect. A: Min. Industry), 89, pp. A30-36.
755. Hagan T.N. (1982): Controlling blast-induced cracking around large caverns. Proc. ISRM Symp., Rock Mechanics Related to Caverns and Pressure Shafts , Aachen, West Germany.
756. Hagenhofer F. (1990): NATM for tunnels with high overburden. Tunnels and Tunnelling, May 1990, pp. 51 – 52.
757. Hagerman T.H. (1966): Different types of rock masses from rock mechanics point of view. Rock Mechanics and Engineering Geology, Vol. IV, No. 3, 1966, pp. 183-198.
758. Haimson B.C. (1978): The hydrofracturing stress measuring method and recent field results. Int. J. Rock Mech. Mi. Sci. & Geomech. Abstr., Vol. 15, pp. 167 - 178.
759. Haimson B.C. (1993): Scale effects in rock stress measurements. Proc. Int. Conf. on Scale Effects in Rock Masses, pp. 89 - 101.
760. Haimson B. and Chang C. (1999): A new true triaxial cell for testing mechanical properties of rock, and its use to determine rock strength and deformability of Westerly granite. Int. J. Rock Mech. Min. Sci., 37, pp. 285-296.
761. Hajabdolmajid V., Martin C. D. and Kaiser P. K. (2000): Modelling brittle failure. In Proc. 4th North American Rock Mechanics Symposium, Narms 2000 Seattle (Ed. J. Girard, M. Liebman, C. Breeds and T. Doe), pp. 991–998. A.A. Balkema, Rotterdam.
762. Hakala M. and Heikkila E. (1997): Summary report - Development of laboratory tests and the stress-strain behaviour of Olkiluoto mica gneiss. Tech. Rep. POSIVA-97-04, Posiva Oy, Helsinki, Finland.
763. Hakami E. (1995): Aperture distribution of rock fractures. Ph.D. thesis, Royal Institute of Technology (KTH), Division of Engineering Geology, Stockholm.
764. Hammett R.D. and Hoek E. (1981): Design of large underground caverns for hydroelectric projects, with reference to structurally controlled failure mechanisms. Proc. American Soc. Civil Engrs. Int. Conf. on Recent Developments in Geotechnical Engineering for Hydro Projects. pp. 192-206. New York: ASCE.
765. Hand G.J., (1997): Construction and assessment of classification rules. John Wileys & sons.

766. Handin J., Hager R.V., Friedman M. and Feather, J.N. (1963): Experimental deformation of sedimentary rocks under confining pressure; pore pressure tests. Bull. Amer. Ass. Petrol. Geol., Vol. 47, pp. 717-755.
767. Haneberg W.C. (2007): Directional roughness profiles from three-dimensional photogrammetric or laser scanner point clouds. Published in E. Eberhardt, D. Stead, and T. Morrison, editors, Rock Mechanics: Meeting Society's Challenges and Demands: Proceedings, 1st Canada-U.S. Rock Mechanics Symposium, Vancouver, May 27-31, 101-106.
768. Hansagi I. (1965): Numerical determination of mechanical properties of rock and of rock masses. Int. J. Rock Mech. Mining Sci., Vol 2, pp. 219-223.
769. Hansagi I. (1965): The strength properties of rocks in Kiruna and their measurements (in Swedish). Ingenjörsverkenskapsakademiens meddelande, IVA no.142, Stockholm, pp. 128-143.
770. Hansen, D.E. and Lachel, D.J. (1980): Ore body ground conditions, in Tunnelling Technology Newsletter, U.S. National Committee on Tunneling Technology, No. 32, pp. 1-15.
771. Hanssen T.H. (1988): Rock Stresses. Norwegian Rock and Soil Assoc., Publ. no. 5, pp. 45-46.
772. Hanssen T.H. (1988): Rock properties. Norwegian Rock and Soil Assoc., Publ. no. 5, 3 pp.
773. Harding H. 1981): Tunnelling history and my own involvement. Golder Associates, University of Toronto, 1981
774. Harding H.J.B. (1949): Site investigations including boring and other methods of subsurface explorations. J. Inst. Civ. Eng., 32, pp. 111-137.
775. Harr M.E. (1987): Reliability-based design in civil engineering. New York: McGraw-Hill.
776. Harrell T.R. and Presley W.O. (1985): Shaft and tunnel lining techniques used at the Rocky Mountain pumped storage project. Proc. Rapid Excavation and Tunneling Conference, New York, Vol. 2, 1985, pp. 1090-1103.
777. Harris R.W. (1982): Prestress grouting of high pressure waterways. Proc. ASCE Specialty Conference on Grouting in Geotechnical Engineering, New Orleans, February 1982, pp. 859-873.
778. Harrison F.L. (1981): Advanced Project Management, Gower, Aldershot.
779. Harrison J.P. (1999): Selection of the threshold value in RQD assessments. International Journal of Rock Mechanics and Mining Sciences 36(5): 673-685.
780. Hatem D.J. (1998): Geotechnical Baselines - Professional Liability Implications. Tunnelling and Underground Space Technology 13, 2, pp.143-50.
781. Hatzor Y. and Goodman R.E. (1992): Application of block theory and the critical key block concept in tunneling; two case histories. In Proc. Int. Soc. Rock Mech. conf. on fractured and jointed rock masses, Lake Tahoe, California, pp. 632-639.
782. Hatzor Y. and Goodman R.E. (1993): Determination of the 'design block' for tunnel supports in highly jointed rock. In Comprehensive Rock Engineering, Principles, Practice and Projects. (ed. J.A. Houson) 2, pp. 263-292. Oxford: Pergamon.
783. Hauber L., Jordan P., Madsen F., Nüesch R. and Vögeli B. (2005): Tonminerale und Sulfate als Ursachen für druckhaftes Verhalten von Gesteinen: Ursachen und Wirkungen des Quellvorgangs. Forschungsauftrag des ASTRA 1966/039, Bericht 1162, VSS Zürich.

784. Hautum F. (1967): High Pressure Water Tunnels. Water Power, June 1967, pp. 237-239.
785. Hawkes I. and Mellor M. (1970): Uniaxial testing in rock mechanics laboratories. Engineering Geology, Vol. 4, pp. 177-285.
786. Hawkins M.F. (1956): A Note on the Skin Effect. Transactions, AIME 207, pp 356-357.
787. Hawkins A.B. (1986): Rock descriptions. In A.B. Hawkins (ed.) Site investigation Practice: Assessing BS 5930, Eng. Geol. Special Pub. No. 2, Geological Society, pp. 59-65.
788. Hawlader B.C., Lo, K.Y. and Moore, I.D. (2003): Analysis of Tunnels in Shaly Rock considering three-dimensional stress effects on Swelling. Proc. 56th Can. Geotech. Conf., 20p.
789. Hawley J. and Pottler R (1991): The Channel Tunnel; numerical models used for the design of the UK cross-over. Tunnelling 91, Institution of Mining and Metallurgy, London published by Elsevier Applied Science 1991, pp. 441 - 449.
790. Health and Safety Commission. (1995): A Guide to managing health and safety in construction. Construction Industry, Advisory Committee, HSE Books 1995.
791. Health and Safety Commission (1995): Designing for Health and Safety in Construction, HSE Books 1995.
792. Health and Safety Commission (1995): Managing construction for health and safety. LS4, HSE Books 1995.
793. Health and Safety Executive (1992): Successful health and safety management. HSG(65) HMSO 1992.
794. Health and Safety Executive (1989): Human factors in industrial safety. HS(G)48, HMSO 1989.
795. Health and Safety Executive (1995): Human Factors in Reliability Group. Improving compliance with safety procedures - reducing industrial violations. HSE Books 1995.
796. Health and Safety Executive (1992): Organisational, management and human factors in quantified risk assessment - report 1. Bellamy LJ & Geyer TAW. HSE Contract Research Report No. 33/1992. HSE Books 1992.
797. Health and Safety Executive (1992): Organisational, management and human factors in quantified risk assessment - report 2. Harrison PI. HSE Contract Research, Report No. 34/1992. HSE Books 1992.
798. Health and Safety Executive (1989): Quantified risk assessment: its input to decision making. 1989.
799. Health and Safety Executive (1989): Risk criteria for land-use planning in the vicinity of major industrial hazards. HMSO 1989.
800. Health and Safety Executive (1992): The tolerability of risk from nuclear power stations. 1992 HMSO.
801. Health and Safety Executive (1995): Use of risk assessment within Government Departments. 1995 HSE Books.

802. Healy P.R. and Head J.M. (1984): Construction over abandoned mine workings. Construction Industry Research and Information Association Special Publication 32, 94 p.
803. Heard H.C., Abey A.E., Bonner B.P. and Schock R.N. (1974): Mechanical behaviour of dry Westerley granite at high confining pressure. Lawrence Livermore Laboratory Report, UCRL 51642, 14 pages.
804. Hedley D. G. F. and Grant F. (1972): Stope-and-pillar design for the Elliot Lake Uranium Mines. CIM Bull., 65: pp. 37–44.
805. Hedley D.G.F., Roxburgh J.W. and Muppalaneni S.N. (1984): A case history of rockbursts at Elliot Lake. In Proc. 2nd Int. Conf. on Stability in Underground Mining, Lexington, pp. 210–234. American Institute of Mining, Metallurgical and Petroleum Engineers, Inc., New York.
806. Hedley D.G.F. (1992): Rockburst handbook for Ontario hardrock mines. CANMET Special Report SP92-1E, Canada Centre for Mineral and Energy Technology.
807. Hefny A., Lo, K.Y. and Huang J.A. (1996): Modelling of long-term time-dependent deformation and stress dependency of Queenston Shale. Canadian Tunnelling, pp.115-146.
808. Heinly B.A. (1913): The failure of the Sand Canon inclined pressure tunnel, Los Angeles, Calif. Engineering News, May 29, 1913, pp. 1147, 1198-1200.
809. Heinz W.F. (1989): Diamond drilling handbook. 2nd edn., W.F. Heinz, Halfway House, South Africa, 525 p.
810. Heise F. and Herbst F. (1913): Lehrbuch der Bergbaukunde. Berlin. Verl. V. J. Springer.
811. Helfrich H.K., Hasselström B. and Sjögren B. (1970): Complex geoscience investigation programmes for siting and control of tunnel projects. The Technology and Potential of Tunnelling, Vol. 1, N.G.W. Cook, editor; Johannesburg.
812. Helfrich H.K. (1971): Mapping of the rock strength by refraction seismic measurements (in Swedish). IVA Report 38, pp. 25-35.
813. Hemwall, J.B. and Low, P.F. (1956): The Hydrostatic Repulsive Force in Clay Swelling. Soil Science, Vol. S2, no. 2.
814. Hencher S.R. and Richards L.R. (1989): Laboratory direct shear testing of rock discontinuities. Ground Engineering, pp. 24-31.
815. Hendron A.J. (1968): Mechanical properties of rock. In K.K. Stagg and O.C. Zienkiewicz (eds) Rock Mechanics in Engineering Practice, Wiley, London.
816. Herget G. (1974): Ground stress determinations in Canada. Rock Mech. and Rock Engin. 10(3-4): pp. 37–51.
817. Herget G. (1982): Probabilistic slope design for open pit mines. Rock Mechanics, Suppl. 12, pp. 163-178.
818. Herget G. (1987): Stress assumptions for underground excavations in the Canadian Shield. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr. 24(1): pp. 95–97.
819. Herget G. (1988): Stresses in rock. A.A. Balkema, 179 p.

820. Herget G. and Arjang B. (1990): Update on ground stresses in the Canadian Shield. In Proc. Stresses in Underground Structures, Ottawa (Ed. G. Herget, B. Arjang, M. Bétournay, M. Gyenge, S. Vongpaisal and Y.Yu), pp. 33–47. Canadian Government Publishing Centre, Ottawa, Canada.
821. Herget G. (1993): Rock stresses and rock stress monitoring in Canada. In Comprehensive Rock Engineering - Rock Testing and Site Characterization (Ed. J. A. Hudson), vol. 3, chap. 19, pp. 473–496. Pergamon Press, Oxford.
822. Hestnes E. (1980): Evaluation of slide risk. Norwegian Geotechnical Institute (NGI), Publ. 132, pp. 61-81.
823. Heuckel T. (1992): Discussion on Effective Stress Concepts and Deformation of Clays subjected to Environmental Loads. *Can Geot J.*, V29, pp.1120-1125.
824. Heuze F.E. and Salem A. (1977): Rock deformability measured in-situ – Problems and solutions. Proc. Conf. Field measurements in Rock Mechanics, Zürich, pp. 375 – 387.
825. Heuze F.E. and Amadei B. (1985): The NX-borehole jack: A lesson in trials & errors. Int. J. Rock Mechanics Mineral Science & Geomechanics Abstracts, Vol. 16, No. 2.
826. Heyman J. (1972): Coulomb's Memoir on Statics — An Essay on the History of Civil Engineering. Cambridge University Press.
827. Higginbottom, I.E. (1971): Superficial structures in reconnaissance and feasibility studies. Q. J. Eng. Geol., 4, pp. 307-10.
828. Higginbottom I.E. (1976): The use of geophysical methods in engineering geology. Ground Engineering, 9 (2), pp. 34-38.
829. Higginbottom I.E. and Fookes P.G. (1970): Engineering aspects of periglacial features in Britain. Q. J. Eng. Geol., 3(2), pp. 85-117.
830. Hight D.W. (1986): Laboratory testing: assessing BS5930. In A.B. Hawkins (ed.) Site Investigation Practice: Assessing BS5930, Eng. Geol. Special Pub. No. 2, Geological Society, pp. 43-51.
831. Himus G.W. and Sweeting (1968): The Elements of Field Geology. 2nd edn, University Tutorial Press, London.
832. Hinds D. (1974): A method of taking an impression of a borehole wall. Imperial College Rock Mechanics Research Report No. 28, Imperial College, London.
833. Hisatake M., Ito T., Sakurai S. and Takeyame T. (1983): Analytical contribution to reasonable NATM tunnel construction. Transactions of the Japan Society of Civil Engineers, Volume 15 (1983), pp. 544 – 548.
834. Hjertström S. and Pettersson S.-Å. (2003): Ny kunskap vid dispergering av mikrocement (in Swedish). Föredrag BK dagen, Bergsprängningskommitten, ISSN 0281-9733, pp. 83-92.
835. Hobbs B.E. and Ord A. (1989): Numerical simulation of shear band formation in a frictionaldilatational material. Ingenieur-Archiv 59, pp. 209-220.
836. Hobbs N.B. (1975): Factors affecting the prediction of settlement of structures on rock: with particular reference to the Chalk and Trias: General report and state-of-the-art review for session 4. Proc. Conf on Settlement of Structures, BGS Cambridge, Pentech Press, London, pp. 579-610.

837. Hodgson K. and Cook N.G.W. The effects of size and stress gradient on the strength of rock, Proc. 2nd Congress Intnl. Soc. Rock Mech., Belgrade, Vol. 2, 1970, Paper 3-5.
838. Hodgson R.A. (1961): Classification of structures on joint surfaces. American J. of Science, Vol. 259, 1961, pp. 493 - 502.
839. Hoek E. (1964): Fracture of anisotropic rock. J. South African Inst. Min. Metall., Vol. 64, No. 10, pp. 510-518.
840. Hoek E. (1965): Rock fracture under static stress conditions. PhD Thesis, Univ. Cape Town.
841. Hoek E. (1965): Rock fracture under static stress conditions. Nat. Mech. Engg. Res. Inst. Report MEG 383, CSIR; S. Africa, 1965, 200 p.
842. Hoek E. (1966): Rock mechanics - an introduction for the practical engineer. Part II. Mining Magazine, London, Vol. 114, No. 6, pp. 13-23.
843. Hoek E. (1968): Brittle failure of rock. In Rock Mechanics in Engineering Practice. (eds. K.G. Stagg and O.C. Zienkiewicz), pp. 99-124. London: Wiley.
844. Hoek E. and Franklin J.A. (1968): A simple triaxial cell for field and laboratory testing of rock. Trans. Inst. Min. Metall., London, Section A, Vol. 77, pp. 22-26.
845. Hoek E. and Bray J.W. (1974): Rock Slope Engineering. Institution of Mining and Metallurgy, London.
846. Hoek E. and Londe P. (1974): General report, surface workings in rock. Proc. Third Int. Congr. on Rock Mech., Denver.
847. Hoek E. (1975): Influence of drilling and blasting on the stability of slopes in open pit mines and quarries. Proc. Atlas Copco Bench Drilling Days Symp., Stockholm, Sweden.
848. Hoek E.: (1981): Geotechnical design of large openings at depth. Rapid Exc. & Tunn. Conf. AIME 1981.
849. Hoek E. (1982). Geotechnical Considerations in Tunnel Design and Contract Preparation. Trans. Instn. Min. Metall. (Sect.A:Min.industry) 91, A101-119.
850. Hoek E. (1983): Strength of jointed rock masses. The Rankine Lecture 1983, Geotechnique 33, no. 3, pp. 187-223
851. Hoek E. (1986): Rockfall: a computer program for predicting rockfall trajectories. Unpublished internal notes, Golder Associates, Vancouver.
852. Hoek E. (1986): Practical rock mechanics - development over the past 25 years. Keynote address delivered on 24.2.1986. Trans. Instn. Min. Metall. (Sect. A: Min.industry), 96, pp. A1 – A6.
853. Hoek E, and Bray J. (1977): Rock slope engineering. The Institution of Mining and Metallurgy, London, 250p.
854. Hoek E. and Brown E.T. (1980): Underground excavations in rock. Institution of Mining and Metallurgy, London 1980, 527 p.
855. Hoek E. and Brown E.T. (1980): Empirical strength criterion for rock masses. Journal of the Geotechnical Engineering Division, ASCE v. 106, n. GT9, pp. 1013-1035.

856. Hoek E. and Bray J.W. (1981): Rock Slope Engineering. 3rd edn. London: Institution of Mining and Metallurgy, 402 p.
857. Hoek E and Brown E.T. (1988): The Hoek-Brown failure criterion - a 1988 update. Proc. 15th Canadian Rock Mech. Symp. (ed. J.H. Curran), pp. 31-38. Toronto: Civil Engineering Dept., University of Toronto
858. Hoek E. (1989): A limit equilibrium analysis of surface crown pillar stability. In Surface crown pillar evaluation for active and abandoned metal mines, (ed. M.C. Betourney), 3-13. Ottawa: Dept. Energy, Mines & Resources Canada.
859. Hoek E. (1990) Estimating Mohr-Coulomb friction and cohesion values from the Hoek-Brown failure criterion. Intnl. J. Rock Mech. & Mining Sci. & Geomechanics Abstracts. 12(3), pp. 227-229.
860. Hoek E., Wood D. and Shah S. (1992): A modified Hoek-Brown criterion for jointed rock masses. Proc. rock characterization, symp. Int. Soc. Rock Mech.: Eurock '92, (ed. J.A. Hudson), pp. 209-214. London: Brit. Geol. Soc.
861. Hoek E. and Moy D. (1993): Design of large powerhouse caverns in weak rock. In Comprehensive rock engineering, (ed. J.A. Hudson) 5, pp. 85-110. Oxford: Pergamon.
862. Hoek E. (1994): Strength of rock masses. News Journal of ISRM, Vol. 2, No. 2, pp. 4-16.
863. Hoek E. (1994): The challenge of input data for rock engineering. Letter to the editor. ISRM, News Journal, Vol. 2, No. 2, 2 p.
864. Hoek E.: Rock mass classification. Hoek's Corner, www.rocscience.com.
865. Hoek E. and Brown E.T. (1994): Practical estimates of rock mass strength. Int J Rock Mech Min Sci 34, pp. 1165-1186.
866. Hoek E., Kaiser P.K. and Bawden W.F. (1995): Rock support for Underground Excavations in Hard Rock. A. A. Balkema, Rotterdam. 215 p.
867. Hoek E. and Brown E.T. (1997): Practical estimates of rock mass strength. International Journal of Rock Mechanics & Mining Sciences & Geomechanics Abstracts, v. 34, no. 8, pp. 1165-1186.
868. Hoek E., Kaiser P.K. and Bawden W.F. (1998): Support of Underground Excavations in Hard Rock. 3rd edition: Rotterdam, A.A. Balkema. 215 p.
869. Hoek E., Marinos P. and Benissi M. (1998): Applicability of the geological strength index (GSI) classification for very weak and sheared rock masses. The case of the Athens schist formation. Bull. Eng. Geol. Env. No 57, pp. 151 - 160.
870. Hoek E. (1999): Putting numbers to geology — an engineer's viewpoint. Q. Jnl. Eng. Geol. vol. 32, 1, pp. 1-19.
871. Hoek E., Carranza-Torres C. and Corkum B. (2002): Hoek-Brown failure criterion – 2002 edition. Proceedings of the 5th North American Rock Mechanics Symposium and 17th Tunnelling Association of Canada Conference: NARMS-TAC 2002. July 7-10. University of Toronto, pp. 267-271.
872. Hoek E. and Diederichs M.S. (2006): Empirical estimation of rock mass modulus. Int. J. Rock Mech. Min. Sci. 43, pp. 203–215.

873. Hofer R., Kovári K. and Chiaverio F. (2007): Chienbergtunnel Sissach – Tunnelhebung infolge Quellen. FGU Tagung, Swiss Tunnel Congress 07. Luzern.
874. Hofmann U., Weiss A., Koch G., Mehler A. and Scholtz A. (1955): Intracrystalline Swelling, Cation Exchange, and Anion Exchange of Minerals of the Montmorillonite Group and of Kaolinite. Clays and Clay Minerals no. 4 (1955), p. 273.
875. Hojem J.M.P. and Cook, N.G.W. (1968): The design and construction of a triaxial and polyaxial cell for testing rock specimens. South African Mech. Engr., Vol. 18, pp. 57-61.
876. Holestöl K. and Palmström A. (1987): Subsea tunnelling for oil: The Petromine concept. Tunnelling and Underground Space Technology. Vol. 2, No. 4, 1987, 31.1 - 31.31.
877. Holestöl K. and Palmström A. (1996): Extensive use of the underground in Oslo is giving a better city. Proc. Int. Conf. on Tunnels for the Third Millennium, Prievidza, Slovakia, 1996, pp. 103 – 114.
878. Holland C.T. and Gaddy F.L. (1957): Some aspects of permanent support of overburden on coal beds. Proc. W. Virginia Coal Mining Inst. pp. 43-66.
879. Holmberg M. and Stille H. (2007): Observationsmetodens grunder och dens tillämpning på design av konstruktioner i berg (in Swedish). SveBeFo Report 80.
880. Holmberg R. and P-A. Persson (1979): Design og tunnel perimeter blasthole patterns to prevent rock damage. Tunnelling 1979 (Proceedings) Inst. Mining and Metallurgy, London
881. Holmberg R. and Persson P-A. (1980): Design of a tunnel perimeter blasthole pattern to prevent rock damage. Trans. Instn Min. Metall. (Sect. A: Min. industry) 89, pp. A37- 40.
882. Holmoy K.H. and Blindheim O.T. (1997): Fire resistance of sprayed concrete. Int. Symp. on Rock Support, Applied solutions for underground structures. Lillehammer, 14 p.
883. Holmöy K., Lien J.E. and Palmström A. (199): Going sub-sea on the brink of the continental shelf. Tunnels & Tunnelling International, May 1999, pp. 25 - 30.
884. Holtz W.G. and Gibbs H.J. (1956): Engineering Properties of Expansive Clays. Trans. Am. Soc. of Civ. Eng., Vol. 121, p. 641.
885. Hong E.S., Lee J.S. and Lee I.M. (2008): Underestimation of roughness in rough rock joints. International Journal for Numerical and Analytical Methods in Geomechanics, (32)11, 1385-1403.
886. Hooper W. and McDowell P.W. (1977): Magnetic surveying for buried mine shafts and wells. Ground Engineering, 10 (2), pp. 21-23.
887. Hope J., Palmström A., and Finnerud K. (1997): Rebuilding of the 70 years old Nore I power plant. Int. Conf. on Hydropower '97, Trondheim, Norway, 1997, 8 p.
888. Horii H., Yoshida H., Uno H., Akutagawa S., Uchida Y., Morikawa S., Yambe T., Tada H., Kyoya T. and Fumio I. (1999): Comparison of computational models for jointed rock mass through analysis of large scale cavern excavation. Proc. Ninth Int. Congr. on Rock Mech., Paris, France, ISRM, Vol. I, 1999, pp. 389-393.
889. Horii H., Uno H., Yoshida H., Akutagawa S., Uchida Y., Morikawa S., Yambe T., Tada H., Kyoya T. and Fumio I. (2000): Comparison and discussion of behaviors during the excavation of

- the Shiobara power house caverns by some numerical methods for jointed rock mass. *J. Geotech. Engn.*, JSCE 2000, 659/III-52, pp. 211-27 (in Japanese).
890. Horino F.G. and Ellickson M.L. (1970): A method of estimating strength of rock containing planes of weakness. U.S. Bureau of Mines Report of Investigations, 7449.
891. Horn H.M. and Deere D.H. (1962): Frictional characteristics of minerals. *Géotechnique*, 12, pp. 319-335.
892. Hoskins J.R. and Horino F.G. (1969): The influence of spherical head size and specimen diameter on the uniaxial compressive strength of rocks. U.S. Bureau of Mines Report of Investigations, 7234. 16 p.
893. Houghton D.A. (1976): The role of rock quality indices in the assessment of rock masses. Proc. of the Symp. on Exploration for rock engineering, Johannesburg, South Africa, pp. 129-135.
894. Houpert, R. and Homand-Etienne, F. (1989): Données récentes sur le comportement des roches en fonction de la température, in *La Thermomecanique des Roches*, Manuels and Methods, BRGM, France.
895. Howarth, D.F., Adamson, W.R. and Berndt, J.R. (1986): Correlation of model tunnel boring and drilling machine performances with rock properties. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, Vol. 23, No.2, pp. 171-175.
896. Howarth, D.F. (1987a): Mechanical Rock Excavation- Assessment of Cuttability and Borability. Proc. RETC, PP. 145 - 165.
897. Howarth, D.F. (1987b): The effect of preexisting microcavities on mechanical rock performance in sedimentary and crystalline Rocks. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, Vol. 24, No.4, pp. 223-233.
898. Hsiung S.H., Ghosh A., Ahola M.P. and Chowdhury A.H. (1993): Assessment of conventional methodologies for joint roughness coefficient determination. *Int. J. Rock. Mech. Min. Sci. & Geomech. Abstr.* v. 30(7), 825-829.
899. Huang, S.L., Aughenbaugh, N.B. and Rockaway, J.D. (1986): Swelling pressures studies of shales. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, Vol. 23, No.5, pp. 371-377.
900. Huang Ziping and Palmström A. (2007): Application of Norwegian subsea tunnel experiences to construction of Xiamen Xiang'an subsea tunnel. *Chinese Journal of Rock Mechanics and Engineering*, 2007, Vol. 26, No. 11.
901. Hubbard C.W. (1969): Cabin Creek pumped-storage project. *Water Power*, April 1969, pp. 129-134.
902. Huber W.G. (1954): Kemano Penstocks. *The Engineering Journal*, November 1954, pp. 1413-1420.
903. Hucka V. (1965): A rapid method of determining the strength of rocks in situ. *Int. J. Rock Mech. Mi Sci.*, 2, pp. 127-134.
904. Hudson J.A., Brown E.T. and Fairhurst C. (1972): Shape of the complete stress-strain curve for rock. In Proc. 13th U.S. Symp. on Rock Mechanics, Urbana (Ed. E. Cording), pp. 773-795. American Society of Civil Engineers, New York.

905. Hudson J.A., Crouch S.L. and Fairhurst C. (1972): Soft, stiff and servo-controlled testing machines; a review with reference to rock failure. *Engineering Geology*, Vol. 6, No. 3, pp. 155-189.
906. Hudson J.A. and Priest S.D. (1979): Discontinuities and rock mass geometry. *Int. J. Rock Mech. Min. Sci & Geomech. Abstr.*, Vol 16, 1979, pp 339 - 362.
907. Hudson J.A. and Priest S.D. (1983): Discontinuity frequency in rock masses. *Int. J. Rock Mec. Min. Sci. & Geomech. Abstr.*, Vol 20, No 2, pp. 73-89, 1983.
908. Hudson J.A. (1989): Rock mechanics principles in engineering practice. CIRIA Ground Engineering report, 72 p.
909. Hudson J. A. (editor) (2002): Strategy for a Rock Mechanics Site Descriptive Model. A test case based on data from the Äspö HRL. SKB Report R-02-04. Svensk Kärnbränslehantering AB (SKB), Stockholm, Sweden.
910. Humphries R.W. and Jory L.T. (1985): Underground Design at Andekaleka Hydroelectric Development. *Canadian Geotechnical Journal*, Vol. 22, 1965, pp. 25-31.
911. Hungr O. and Evans S.G. (1989): Engineering aspects of rockfall hazard in Canada. Geological Survey of Canada, Open File 2061, 102 p.
912. Hunt R.E. (1984): Slope failure risk mapping for highways: Methodology and case history. In *Rockfall prediction and Control and Landslide Case Histories*. Transportation Research Record, National Research Council, Washington, No. 1343. pp. 42-51.
913. Hunt R.E.B. and Askew J.E. (1977): Installation and design guidelines for cable dowel ground support at ZC/NBHC. Proc. Underground Operators Conference, Broken Hill, pp. 113-22.
914. Hustrulid W.A. (1971): A comparison of laboratory cutting results and actual tunnel boring performance. Mining Dept., Colorado School of Mines, Golden, Colorado.
915. Hutchins W.R., Bywater S., Thompson, A.G. and Windson, C.R. (1990): A versatile grouted cable dowel reinforcing system for rock. Proc. Aus. Inst. Min. Metall. 1, pp. 25-29.
916. Hutchinson D.J. and Diederichs M.S. (1996): Cablebolting in underground mines. BiTech Publishers Ltd., Richmond.
917. Hutchinson J. N. (1991): Periglacial and slope processes in Quaternary Engineering Geology. Geological Society Engineering Geology Special Publication No. 7. 1991, pp. 283 - 331.
918. Hval O. (2000): Comparison between the engineering geological classification systems RMR, Q and RMi – experiences from practical use in the Tåsen tunnel and the Svartdal tunnelen (in Norwegian). Cand. Scient. Institute for geology, University in Oslo.
919. Hyett A.J., Dyke C.G. and Hudson J.A. (1986): A critical examination of basic concepts associated with the existence and measurement of in situ stress. In Proc. Int. Symp. on Rock Stress and Rock Stress Measurements (Ed. O. Stephansson), pp. 687–694. Centek, Lulea.
920. Hyett A.J., Bawden W.F. and Coulson A.L. (1992): Physical and mechanical properties of normal Portland cement pertaining to fully grouted cable bolts. In *Rock support in mining and underground construction, proc. int. symp. rock support*, Sudbury, (eds. P.K. Kaiser and D.R. McCreath), pp. 341-348. Rotterdam: Balkema.

921. Hyett A.J., Bawden W.F. and Reichert R.D. (1992): The effect of rock mass confinement on the bond strength of fully grouted cable bolts. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.* 29(5), pp. 503-524.
922. Hyett A.J., Bawden W.F., Powers R. and Rocque P. (1993): The nutcase cable. In Innovative mine design for the 21st century, (eds. W.F. Bawden and J.F. Archibald), pp. 409-419. Rotterdam: Balkema.
923. Håkansson U. (1993): Rheology of fresh cement-based grout. Ph.D. thesis, Royal Institute of Technology (KTH), Division of Soil and Rock Mechanics, Stockholm.
924. Hässler L. (1991): Grouting of rock simulation and classification. Ph.D. thesis, Royal Institute of Technology (KTH), Division of Soil and Rock Mechanics, Stockholm.
925. Hässler L., Wilén P. and Forhaug M. (1998): Grouting of rock tunnel: The Arlanda Express Project. Proc. to Underground Construction in Modern Infrastructure, Stockholm. pp. 361-366, ISBN 90 5410 964 5.
926. IAEG (1981): Commission on Site Investigation - Engineering geological mapping. International Association of Engineering Geology (IAEG), Bull. No. 24, pp. 185-274.
927. Ide J.M. (1936): Comparison of statically and dynamically determined Young's modulus of rock. *Proc. Nat. Acad. Sci.* 22, pp. 81- 92.
928. Ikeda K. (1970): A classification of rock conditions for tunneling. *Quarterly Reports*, Vol. 11, No. 2, pp. 71-74.
929. Ilsley R.C., Costello M.J. (1983): Discontinuity characterization for underground openings in the Milwaukee water pollution abatement program. *Underground Space*, Vol. 7, 1983, pp. 214 - 220.
930. Iman R.L., Davenport J.M. and Zeigler D.K. (1980): Latin Hypercube sampling (A program user's guide). Technical Report SAND79-1473. Albuquerque, New Mexico: Sandia Laboratories.
931. Imrie A.S. (1983): Taming the Downie Slide. *Canadian Geographic* 103.
932. Imrie A.S., Moore D.P. and Enegren E.G. (1992): Performance and maintenance of the drainage system at Downie Slide. *Proc. 6th Int. Symp. on Landslides*, Christchurch, New Zealand.
933. Ingevald K. and Strindell. L. (1977): Brofjorden. Bergtrycksmätning vid anläggning 3904 (in Swedish). Vattenfall report BTH L-566.
934. Ingevald K. and Strindell L. (1980): Brofjorden II. Bergtrycksmätning vid anläggning 3904 C (in Swedish). Vattenfall report BTH-SV L-602.
935. Inokuma A. et al. (1994): Studies on the present state and the mechanism of trouble occurrence in tunnel construction in Japan. 1994 ITA Conf. (Cairo) 'Tunnelling and Ground Conditions', pp. 239 - 246. Balkema publishers.
936. Institution of Civil Engineers, Site Investigation Steering Group (1991): Site Investigation in Construction. Parts 1, 2 and 3, Thomas Telford Ltd, London.
937. International Society for Rock Mechanics (ISRM), Commission on standardization of laboratory and field tests (1971): Suggested methods for determining the slaking, swelling, porosity, density and related rock index properties. *Int. Soc. Rock Mech. secretary*, Lisbon.

938. International Society for Rock Mechanics (ISRM), Commission on "Definition of the most promising lines of research" (1971): Final report. Int. Soc. Rock Mech. secretary, Lisbon.
939. International Society for Rock Mechanics (ISRM), Commission on standardization of laboratory and field tests (1972): Suggested methods for determining the uniaxial compressive strength of rock materials and the point load strength index. Committee on laboratory tests. Int. Soc. Rock Mech., Lisbon.
940. International Society for Rock Mechanics (ISRM), Commission on Terminology, Symbols and Graphic Representation.(1975): Terminology. Int. Soc. Rock Mech. secretary, Lisbon.
941. International Society for Rock Mechanics (ISRM) (1975a): Recommendations on site investigation techniques. Int. Soc. Rock Mech., Lisbon, Final report: July 1975, 56 p.
942. International Society for Rock Mechanics (ISRM), Commission on standardization of laboratory and field tests (1978): Suggested methods for the quantitative description of discontinuities in rock masses. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 15, No. 6, pp. 319-368.
943. International Society for Rock Mechanics (ISRM) (1979): Suggested methods for determining in situ deformability of rock. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 16, No. 3, pp. 195-214.
944. International Society for Rock Mechanics (ISRM), Commission on classification of rocks and rock masses (1980): Basic geotechnical description of rock masses. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 18, pp. 85-110.
945. International Society for Rock Mechanics (ISRM) working groups (1981): Rock characterization, testing and monitoring. Brown E.T., editor, Pergamon Press, New York, 211 pp.
946. International Society for Rock Mechanics (ISRM), Commision on Testing Methods (1981): Suggested methods for determining the uniaxial compressive strength and deformability of rock materials. Int. Soc. Rock Mech., secretary, Lisbon, 5 p.
947. International Society for Rock Mechanics (ISRM) (1981): Commission on classification of rocks and rock masses. Int. J. Rock Mech. Min. Abstr. 18, pp. 85–110.
948. International Society for Rock Mechanics (ISRM), Commission on swelling rock (1983): Characterization of swelling rock. Int. Soc. Rock Mech. secretary, Lisbon.
949. International Society for Rock Mechanics (ISRM), Commision on Testing Methods (1985): Suggested method for determining point load strength. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 22, pp. 51-60.
950. International Society for Rock Mechanics (ISRM), Commission on Testing Methods (1987): Suggested methods for rock stress determination. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr. Vol. 24, No. 1, pp. 53-73.
951. International Society for Rock Mechanics, Commission on testing methods (1989): Suggested method for large scale sampling and triaxial testing of jointed rock. Int. J. Rock Mech. Min. Sci. & Geomech Abstr., Vol. 26, No. 5, pp. 427- 434.
952. International Society for Rock Mechanics (ISRM), Commission on failure mechanisms around underground excavations, First report (1989): Observations, researches and recent results about failure mechanisms around single galleries. Int. Soc. Rock Mech. secretary, Lisbon.

953. International Society for Rock Mechanics (ISRM) (2007): The complete ISRM suggested methods for rock characterization, testing and monitoring: 1974–2006. In: Ulusay, R., Hudson, J.A. (eds.), Suggested Methods Prepared by the ISRM Commission on Testing Methods, Compilation Arranged by the ISRM Turkish National Group. Kozan Ofset, Ankara, 628 p.
954. International Tunnelling Association (ITA) (1990): ITA Recommendations on contractual sharing of risks. *Tunnels and Underground Space Technology*, Vol. 5, No. 4, 1990
955. International Society for Rock Mechanics (ISRM) (1996): Commission on Rock Grouting. *International Journal for Rock Mechanics and Mining Sciences*. Vol. 33, no 8, pp. 803-847.
956. International Tunnelling Association (ITA) (2004): Guidelines for tunnelling risk management: International Tunnelling Association, Working Group No.2. *Tunnelling and Underground Space Technology* 19, pp. 217–237.
957. International Tunnelling Association (ITA) Report of WG 6, Maintenance and repair: Study of methods for repair of tunnel linings.
958. Irfan T.Y. and Dearman W.R. (1978): Engineering classification and index properties of a weathered granite, *Bull. Intl. Assoc. Eng. Geol.*, No. 17, pp. 79-90.
959. IS: 7746 (1975): Indian Standard code of practice for in-situ shear test on rock. ISI, New Delhi.
960. Isaksen V. and Solberg E. (1990): Fullface boring at Svartisen power plant (in Norwegian). Final dissertation work University of Trondhein, Norway
961. Isaksson T. (2002): Models for estimation of time and cost based on risk evaluation applied on tunnel projects. Doctoral Thesis, Division of Soil and Rock Mechanics, Royal Institute of technology (KTH), Stockholm.
962. Ito I. and Hisatake M. (1981): Analytical study of NATM: Proc. 10th Int. Conf. Soil Mechanics and Foundation Engineering (Stockholm, June 1981). Published by A. A. Balkema, pp. 311 – 314.
963. Jacobs J.A. (1981): Seismology and the deep structure of the earth. Ch. 3 in: The Cambridge encyclopedia of earth sciences (D.G. Smith, ed.), Cambridge University Press, pp. 36 - 50.
964. Jacobs J. D. (1975): Some tunnel failures and what they have taught us. Proc. 1975 Conf. ‘Hazards in Tunnelling and Falsework’. Institution of Civil Engineers, London. 1975.
965. Jacobsen S. (1974): Buckling of circular rings and cylindrical tubes under external pressure. *Water Power and Dam Construction*, December 1974, pp. 400-407.
966. Jacobsen S. (1977): Pressure distribution in steel lined rock tunnels and shafts. *Water Power*, December 1977, pp. 47-51.
967. Jacobsen S. (1983): Steel linings for hydro tunnels. *Water Power and Dam Construction*, June 1983, pp. 23-25.
968. Jaeger C. (1955): Present trends in the design of pressure tunnels and shafts for underground hydroelectric power stations. *Proc. Instn. Civil Eng.*, Vol. 4, 1955, Paper No. 5978, pp. 116-201.
969. Jaeger J.C. (1960): Rock failure at low confining pressures. *Engineering*, Vol. 189, pages 283-284.
970. Jaeger, J.C. (1960): Shear failure of anisotropic rock. *Geol. Mag.*, Vol. 97, pp. 65-72.

971. Jaeger J. C. (1961): Recent British experience on underground work and rock mechanics. Proc. Intn. Congress on Large Dams, Rome, 1961, Question 25, Reply 6.
972. Jaeger, J.C. (1970): The behaviour of closely jointed rock. Proc. 11th Symposium on Rock Mech. 1969, Berkeley, published by AIME, New York, pp. 57-68.
973. Jaeger J.C. and Cook N.G.W. (1969): Fundamentals of Rock Mechanics. London: Chapman and Hall.
974. Jaeger J.C. (1971): Friction of rocks and stability of rock slopes. The 11th Rankine Lecture. Géotechnique 21(2), pp. 97-134.
975. Jaeger C. (1972): Rock Mechanics and Engineering. Cambridge: at the University Press, 417 p.
976. Jaeger, C. (1979): Rock mechanics and engineering. Cambridge University Press, Second Edition, 1979.
977. Jackson D.D. (1972): Interpretation of inaccurate, insufficient and inconsistent data. Geophys. J. R. Abstr. Soc., 28, pp. 97-109.
978. Jamtveit B. and Yardley B. (1997): Fluid Flow and Transport in Rocks — Mechanisms and Effects, Chapman & Hall, ISBN 0 412 734 605.
979. Janda M. (1986): Construction of Czechoslovakia's Dlouhe Strane project. Water Power and Dam Construction, February, 1986, pp. 23-26.
980. Janelid I. (1965): Rock mechanics and its significance in mine and rock excavation design (in Swedish). Royal Academy of Engineering Sciences, Report 142, pp. 7-12.
981. Jang B.A., Jang H.S. and Park H.-J. (2006): A new method for determination of joint roughness coefficient. In Proceedings of IAEG2006: Engineering Geology for Tomorrow's Cities, Nottingham, UK, 6-10 September 2006: Paper 95, 9 pp. London, UK: The Geological Society of London.
982. Janson T. (1998): Calculation models for estimation of grout take in hard jointed rock, Ph.D. thesis, Royal Institute of Technology (KTH), Division of Soil and Rock Mechanics, Stockholm.
983. Japanese Ministry of Construction (Tunnel Division of the Public Works Research Institute) Road Tunnel Technology in Japan. October 1991.
984. Japan Labour Standards Bureau (Industrial Safety and Health Department) (1995): Safety in tunnel construction work: NATM edition – a handbook. A publication of the Japan Tunnel Engineering Association, March 1995, 249 p.
985. Javadi A.A. and Snee C.P.M. (1997): A New Method for Predicting Compressed Air Losses from Tunnels. Proceedings, Tunnelling '97 Conference, London, pp. 57-69.
986. Javadi A.A. and Snee C.P.M (1997): The Contribution of Compressed Air Losses to Surface Settlement. Proceedings, Tunnels for People, World Tunnel Congress, Vienna, Austria, pp. 483-489.
987. Javadi A.A. and Snee C.P.M. (1999): Geotechnical Aspects and Numerical Modelling of Compressed Air Tunnelling. Proceedings, 5th US National Conference on Computational Mechanics in Tunnelling, Boulder, USA.

988. Javadi A.A., Farmani R., Toropov V.V. and Snee C.P.M. (1999): "Identification of Parameters for Air Permeability of Shotcrete Tunnel Lining Using a Genetic Algorithm," Computers and Geotechnics 25, 1999.
989. Javadi A.A. and Snee C.P.M. (2001): The Effect of Air Pressure on the Shear Strength of Soil as a Consequence of Compressed Air Tunnelling. Canadian Geotechnical Journal, Vol 38, No. 6, 2001, pp. 1187-1200.
990. Javadi A.A. and Snee C.P.M. (2002): Numerical Modelling of Air losses in Compressed Air Tunnelling. International Journal of Geomechanics, Vol. 2, Number 4, 2002, pp. 399-417.
991. Jennings J.E. and Robertson A. MacG. (1969): The stability of slopes cut into natural rock. Conf. on Soil Mechanics and Foundation Engineering, Mexico, Vol. II, pp. 585-590.
992. Jensen M. (1969): Civil Engineering around 1700. Danish Technical Press, Copenhagen.
993. Jerrett R.C., Helwig P.C. and Tasker J.A. (1984): The Cat Arm hydroelectric development, Newfoundland concept, design and construction. Proc. Canadian Society for Civil Engineering, Annual Conference, Halifax, Nova Scotia, 1984, pp 1-20.
994. Jethwa J.L., Dube A.K., Singh B., and Mithal R.S. (1982): Evaluation of methods for tunnel support design in squeezing rock conditions. Proc. 4th Int. Congr. Int. Assoc. Eng. Geol., New Delhi, 1982, Vol. 5 pp. 125-134.
995. Jiang X.W., Wan L., Wang X.S., Wu X., Zhang X. (2009): Estimation of rock mass deformation modulus using variations in transmissivity and RQD with depth. Int J Rock Mech Min Sci 46: 1370–1377.
996. Jing L., Stephansson O. and Nordlund E. (1993): Study of rock joints under cyclic loading conditions. Rock Mech. Rock Eng. 1993; 26(3): pp. 215-32.
997. Jirovec P. (1978): Wechselwirkung zwischen anker und gebirge. Rock Mech. Suppl. 7, pp. 139-155.
998. Jodl H.G., (1995): Construction method NATM. IACES, Bureau of Vienna, Summer course in NATM, University of Technology, Vienna.
999. Johansen P.M. and Vik G. (1982): Prediction of air leakages from air cushion surge chambers. Intn. Symp. on Rock Mechanics, Aachen, Vol. 2, 1982, pp. 935- 938.
1000. Johansson E. and Hakala M. (1995): Rock mechanical aspect on the critical depth of kbs-3 type repository based on brittle rock strength criterion developed at URL in Canada. Arbets Rapport AR D-95-014, Swedish Nuclear Fuel and Waste Management Company, Stockholm, Sweden.
1001. Johansson F. (2009): Shear strength of unfilled and rough rock joints in sliding stability analysis of concrete dams [Doctoral Thesis]. Division of Soil and Rock Mechanics, Royal Institute of Technology, Stockholm, Sweden; Available online at (<http://swepub.kb.se/>).
1002. John K.W. (1968): Graphical stability analyses of slopes in jointed rock. Proc. Soil Mech. Fndn Div., ASCE, SM2, paper no. 5865.
1003. John K.W. (1969): Civil engineering approach to evaluate strength and deformability of regularly jointed rock. 11th intn. symp. on rock mech., pp. 69-80.

1004. John, K.W. (1969): Festigkeit und Verformbarkeit von druckfesten, regelmässig gefügten Diskontinuen. Veröffentlichungen des Institutes für Bodenmechanik und Felsmechanik der Universität Fredericiana in Karlsruhe, Heft 37, 1969, 99 p.
1005. John K.W. and Baudendistel M. (1981): A compromise approach to tunnel design. 22nd US Symp. on Rock Mechanics, 1981, pp. 333-341.
1006. John M. (1978): NATM design of the Arlberg Expressway tunnel and the Pfandertunnel. Proc. 1978 Engineering Foundation Conference (Austria), pp. 27 – 42.
1007. John M. and Crighton G. S. (1990): Monitoring and interpreting of results of geotechnical measurements for NATM linings design for the Channel Tunnel. Conf. at University of Nottingham, April 1989. Published in Geotechnical instrumentation in practice, Thomas Telford Ltd. London. 1990.
1008. John M., Wogrin J. and Heissel G. (1987): Analysis of the collapse of the Landrütter Tunnel (1987). Felsbau 5, 1987, No. 2, pp. 61 – 67.
1009. Johnson R.B. (1954): Use of the refraction method for differentiating Pleistocene deposits in Arcola and Tuscola Quadrangles, Illinois. Illinois Geol. Surv. Report Investigation 176, Illinois Geological Survey.
1010. Johnson, R.B. and DeGraff, J.V. (1988): Principles of Engineering Geology, Wiley.
1011. Jones, D.E.Jr. and Jones, K.A. (1987): Treating expansive soils. Civil Engineering Magazine, ASCE, pp. 62-65.
1012. Jones D. K. C. (1981): The Pleistocene evolution of the Thames, South east and Southern England. published by Methuen, London, pp. 199 – 224.
1013. Judd W.R. and Huber C. (1961): Correlation of rock properties by statistical methods. Inc. Symp. on Mining Research, Missouri, 1961, pp. 621-648.
1014. Kaiser P.K., MacKay C. and Gale A.D. (1986): Evaluation of rock classifications at B. C. Rail Tumbler Ridge Tunnels. J. Rock Mech. and Rock Engn., Vol. 19, pp. 205-234.
1015. Kaiser P.K., Hoek E. and Bawden W.F. (1990): A new initiative in Canadian rock mechanics research. Proc. 31st US rock mech. symp., Denver, pp. 11-14.
1016. Kaiser P.K., Yazici S. and Nosé J. (1992): Effect of stress change on the bond strength of fully grouted cables. Int. J. Rock Mech. Min. Sci. Geomech. Abstr. 29(3), pp. 293-306.
1017. Kaiser P.K., McCreath D.R. and Tannant D.D. (1996): Canadian Rockburst Support Handbook. Mining Research Directorate, Sudbury.
1018. Kaiser P.K., McCreath D.R. and Tannant D.D. (1997): Rockburst support. In Canadian Rockburst Research Program1990-95, vol. 2, p. 342. Canadian Mining Industry Research Organization (CAMIRO), Sudbury.
1019. Kaiser P.K. and Tannant D.D. (1999): Lessons Learned for Deep Tunnelling from Rockburst Experiences in Mining. Symposium on “Vorerkundung und Prognose der Basistunnels am Gotthard und am Lötschberg”, pp. 325–337. A.A. Balkema.
1020. Kaiser P.K., Diederichs M.S., Martin C.D., Sharp J. and Steiner W. (2000): Underground works in hard rock tunnelling and mining. GeoEng 2000, pp. 841–926. Technomic Publ. Co.

1021. Kaiser P. K. (2006): Rock mechanics consideration for construction of deep tunnel in brittle ground. Asia Rock Mechanics Symposium, Singapore.
1022. Kaiser P.K. (2006): Tunnel stability in highly stressed, brittle ground – Rock mechanics considerations for Alpine tunnelling. Geologie und Geotechnik der Basistunnels. GEAT'05 Symposium, Zürich, pp. 183–201.
1023. Kaiser P.K. and Kim B.H. (2008): Rock Mechanics Challenges in Underground Construction and Mining. In (Potvin, Carter, Dyskin & Jeffery, eds.) 1st Sou. Hem. Int. Rock Mech. pp. 23–38.
1024. Kaiser P.K. and Kim B.H. (2008): Rock mechanics advances of underground construction and mining. Korea Rock Mech. Society, Seoul, pp. 1–16.
1025. Kaiser P.K., Amann F. and Steiner W. (2010): How highly stressed brittle rock failure impacts tunnel design. Eurock 2010, Lausanne, pp. 27–38.
1026. Karmis M. (ed.) (1986): Application of rock characterization in mine design. SME Publication, Littletown Co.
1027. Karol R.H. (1982): Chemical grouts and their properties. Grouting in Geotechnical Engineering, New Orleans, February 1982, pp. 359-377.
1028. Kassim A., Bakar I. and Snee C.P.M (1995): Undisturbed Sampling of Weak and Highly Weathered Granite. Proceedings, COSTAM Conference, Kuala Lumpur, Malaysia, 1995.
1029. Katzenbach R. and Breth H. (1980): Critical zones in the construction of NATM tunnels close to the surface. Proc. Geomechanical Colloquium of the Austrian Society for Geomechanics, Salzburg 1980, pp. 187 – 201.
1030. Kawamoto T., Ichikawa Y, and Kyoya T. (1988): Deformation and fracturing behavior of discontinuous rock mass and damage mechanics theory. Int. J. Numer Anal. Methods Geomech., 1988, 12, pp. 1-30.
1031. Kawamoto T., Aydan Ö. and Tsuchiyama S. (1991): A consideration on the local instability of large underground openings. Int. Conf. GEOMECHANICS'91, Hradec, 33-41.
1032. Kazda, J. (1961): Study of the Swelling Pressure of Soils. Proc. 5th Int. Conf. on Soil Mech. and Found. Eng., vol.1, 140 p.
1033. Kehew, A.E. (1995): Geology for Engineers & Environmental Scientists, Prentice Hall, 2nd Ed.
1034. Kemeny J.M. and Cook N.G.W. (1987): Crack models for the failure of rock under compression. In Proc. 2nd int. conf. on constitutive laws for engineering materials, theory and applications, (eds. C.S. Desai, E. Krempl, P.D. Kiousis and T. Kundu) 1, pp. 879-887. Tucson, AZ: Elsevier.
1035. Kendorski F., Cummings R., Bieniawski Z.T. and Skinner E. (1983): Rock mass classification for block caving mine drift support. Proc. 5th congr. Int. Soc. Rock Mech., Melbourne, pp. B51-B63. Rotterdam: Balkema.
1036. Kennie T.J.M. and Matthews M.C. (1985): Remote Sensing in Civil Engineering. Surrey University Press, Glasgow, 351 p.
1037. Kikuchi K., Kobayashi T., Inoue M. and Izumiya Y. (1985): A study on the quantitative estimation of joint distribution and the modelling of jointed rock masses. Tokyo Electric Power Services Co., Engineering geological department, Civil operation center. 10 p.

1038. Kikuschi K., Mito Y. and Nakada M. (1995): In-situ seepage flow tests on jointed rock mass and its analysis. Proc. to The Int Workshop on Rock Foundation, Tokyo, Japan 1995, Yoshinaka & Kikuchi (eds). Balkema, Rotterdam. ISBN 90 5410 562 3.
1039. Kildemo G.A. (1985): En bergmekanisk undersökelse av Kobbskaret Vegtunnel (in Norwegian; in English: A rock mechanics investigation in the Kobbskaret tunnel). M.Sc. thesis. Norwegian Institute of Technology. Trondheim.
1040. Kilford W.K. (1973): Elementary Air Survey. 3rd edn, Pitman, London.
1041. Kim D.-Y. and Lee H.-S. (2009): Quantification of rock joint roughness and development of analyzing system. In P. H. S. W. Kulatilake (Ed.), Proceedings of the International Conference on Rock Joints and Jointed Rock Masses Tucson, AZ, 7-8 January 2009: Paper 1019, 8 p.
1042. Kimura T, Esaki T. (1995): A new model for the shear strength of rock joints with irregular surfaces. In: Rossmanith H-P. editor. Mechanics of jointed and faulted rock. Rotterdam: Balkema; 1995. p. 133-8.
1043. King C. (1981): The statigraphy of the London clay and associated deposits. Tertiary Research Special Paper No. 6, Backhuys, Rotterdam 1981.
1044. King E.H. (1996): Rock tunnels. In Bickel J.O., Kuesel T.R. and King E.H. (ed.) Tunnel Engineering handbook, Chapman & Hall, Ch. 7, pp. 122-152.
1045. King L.V. (1912): On the limiting strength of rocks under conditions of stress existing in the earth's interior. *J. Geol.* 20, pp. 119- 138.
1046. Kirkaldie L. (1988): Rock classification systems for engineering purposes. STP 984, Amer. Society for Testing Materials, 167 p.
1047. Kirsch G. (1898): Die theorie der elastizitat und die bedurfnisse der festigkeitslehre. *Veit. Deit. Ing.* 42 (28), 797-807.
1048. Kirschke D. (1986): New Railway lines in Germany – Rapid Tunnelling in difficult ground conditions: How to close the gap between safety and economy. Proc. 1986. ITA Conf. (Firenze), pp. 200 – 206.
1049. Kirschke D. (1985): Safety and risk in tunnelling at the limits of practicability (1991). (in German: Sicherheit und Risiko bei Untertagbauwerken), ETH Symposium, 21/22 March 1991.
1050. Kirschke D. and Schrewe F. (1985): In case of doubts – safety first; cost and benefits to measure to increase the safety level in tunnelling (1985). *Forschung und Praxis*, pp. 119 – 124.
1051. Kirschke D. (2010): Approaches to technical solutions for tunnelling in swelling ground. Proc. 59th Colloquium, Geomechanics and tunneling, vol. 3, issue 4.
1052. Kirsten H.A.D. (1992): Comparative efficiency and ultimate strength of mesh- and fibrefreinforced shotcrete as determined from full-scale bending tests. *J. S. Afr. Inst. Min. Metall.* Nov., pp. 303-322.
1053. Kirsten H.A.D. (1993): Equivalence of mesh- and fibre-reinforced shotcrete at large deflections. *Can. Geotech. J.* 30, pp. 418-440.
1054. Klüver B.H. and Iversen E. (2003): Rock grouting in Norwegian tunnels — the latest experiences (in Norwegian, summary in English). proc. Bergmekanikdag 2003, SveBeFo.

1055. Knill J.L. (1969): The application of seismic methods in the prediction of grout take in rock. Proc. Int. Conf. In Situ Investigations in Soil and Rocks, pp. 63-70.
1056. Knill J.L. (1971): Collecting and Processing of Geological Data for Purposes of Rock Engineering: The Analysis and Design of Rock Slopes. University of Alberta, Edmonton, Canada.
1057. Kobayashi S. and Stille H. (2007): Design of rock grouting based on analysis of grout penetration - Verification using Äspö HRL data and parameter analysis. SKB R-07-13, Svensk Kärnbränslehantering AB.
1058. Kochen R., Negro A. Jnr, Hori K., Ferrari O. A., Maffei C. E. M. (1987): Longitudinal displacements induced by the excavation of a shallow tunnel. Int. Conf. Soil-Structure Interactions, 5-7 May 1987. Ecole National des Ponts et Chaussees, Paris.
1059. Koerner U. (1971): Critical notes on rock classification in underground construction from a geological point of view. Die Bautechnik, No. 9, pp. 318-319.
1060. Kompen R. and Opsahl O.A. (1986): Wet process shotcrete with steel fibre and silica fume - state of the art in Norway. Proc. 2nd Int. Conf. on fly ash, silica fume, slag and natural pozzolane in concrete, Research Session. Madrid 1986, 18 p.
1061. Kompen R. (1989): Wet process steel fibre reinforced shotcrete for rock support and fire protection, Norwegian practice and experience. In Proc. underground city conf., Munich, (ed. D. Morfeldt), pp. 228-237.
1062. Konietzky H., Rummel F. and Brox D.R. (1992): "Stress Field Estimation in Hong Kong Using the Method of Hydraulic Fracturing". EUROCK '92, Chester, England.
1063. Konigshofer E. (1961): The Dorfertal-Huben project. Water Power, October 1961, pp. 400-404.
1064. Konta, J. (1961): Imbiometry - a New Method for the Investigation of Clays. Am. Miner., vol. 46, p. 289.
1065. Koopmans R. and Hughes R.W. (1984): An automated and computerized dilatometer system to measure deformation modulus of rock. Presented at the Western States Mining Expo-84, Reno, Nevada, August 1984, 12 p.
1066. Korea Civil Engineering Society (1992): Consultancy Research Report on the Causes of Tunnel Accidents and Restoration Measures. June 1992, 214 p.
1067. Kovari K. (1979): Basic considerations on design of underground openings. Int. Ass. Bridge and Structural Engineering, IABSE Periodical 3/1979.
1068. Kovari K. (1993): Erroneous concepts behind NATM. lecture given at Rabcewicz Colloquium, Salzburg October 1993. Published by Swiss Federal Institute of Technology, Zurich.
1069. Kovari K. (1994): Erroneous concepts behind the New Austrian Tunnelling Method. Tunnels & Tunnelling, November 1994. Vol. 26. 38-42.
1070. Kovari K. (2009): Design Methods with Yielding Support in Squeezing and Swelling Rocks. Proc. 35th ITA WTC Paper O-12-04, Budapest, 10p.
1071. Kovari K. and Tisa A. (1975): Multiple failure state and strain controlled triaxial tests. Rock Mechanics, Vol. 7, 1975, pp. 17-33.

1072. Kovari K., Amstad C.H. and Anagnostou G. (1988): Tunnelling in Swelling Rock. Proceedings of the 29th US Symposium, Key Questions in Rock Mechanics, pp. 17-32.
1073. Kovari K. and Weber J. (1991): Minimising risks with the shotcrete construction method for the Munich Underground railway system. Proc. ETH Symp. ‘Security and risks in underground workings’, Zurich, March 1991
1074. Krauland N., Söder P. and Agmalm G. (1989): Determination of rock mass strength by rock mass classification - Some experiences and questions from Boliden mines. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 26, No 1, pp 115 - 123.
1075. Krumbein W.C. and Greybill F.H. (1965): An introduction to statistical models in geology. McGraw-Hill, Inc. New York, 475 p.
1076. Kruse G.H. (1970): Rock properties and steel tunnel liners. Proc. ASCE, Journal of the Power Division, June, 1970, pp. 415-435.
1077. Kuhl D.E. and Edwards R.Q. (1963): Image separation radioisotope scanning. Radiology, 8, pp. 653-662.
1078. Kuhnhenn K. (1980): Consideration of safety at work in planning and invitations to tender article in TIEFBAU-BG. Edition of 8/1980. pp. 666 – 673.
1079. Kuhnhenn K. (1995): The accuracy of NATM demonstrated through typical failure cases. Proc. Rapid Excavation and Tunnelling Conference (USA), pp. 671 - 681
1080. Kuhnhenn K. (1995): The new Austrian Tunnelling Method. Tiefbau 5/95, pp. 20 - 29.
1081. Kulatilake P., Shou G., Huang T.H. and Morgan R.M. (1995): New peak shear-strength criteria for anisotropic rock joints. Int. J. Rock. Mech. Min. Sci. & Geomech. Abstr., vol. 32(7), pp. 673-697.
1082. Kulatilake PHSW. Um j, Pan G. (1997): Requirements for accurate estimation of fractal parameters for self-affine roughness profiles using the line scaling method. Rock Mech Rock Engn 1997; 30 (4):181-206.
1083. Kulhawy F.H., Goodman R. E. (1980): Design of foundations on discontinuous rock. In Proc. Int. Conf. Structural Foundations on Rock 1: pp. 209-220. International Society for Rock Mechanics.
1084. Kulhawy F.H., Beech J.F. and Trautmann C.H. (1989): Influence of geologics developement on horizontal stress in soil. Foundation Engineering Congress ASCE, Evanston, Illinios, USA.
1085. Kwang Joon Park and In Keun Lee (1993): Modes and causes of collapse of subway tunnels. Proc. National Conference of Geotechnical Engineering and Tunnelling Technology, Seoul, Korea, pp. 41 - 48.
1086. Ladanyi B. and Archambault. G. (1970): Simulation of shear behaviour of a jointed rock mass. In Rock mechanics - Theory and Practice, Proc. 11th Symp. on Rock Mechanics, Berkeley, 1969, pp.105-125. New York: Society of Mining Engineers, AIME.
1087. Lachel D.J (1970): Engineering geologist's role in hard rock tunnel machine selection. Second Southeast Asian Conference on Soil Engineering. Singapore, June 1970, pp. 79—80.
1088. Lajtai E.Z. (1982): The fracture of Lac du Bonnet granite. Contract Report. Pinawa, Ontario: Atomic Energy of Canada.

1089. Lajtai E.Z. and Lajtai V.N. (1975): The collapse of cavities. *Int. J. Rock Mech. Min. Sci. Geomech. Abstr.* 12, pp. 81-86.
1090. Lake L.M. and Simons N.E. (1970): Investigations into the engineering properties of chalk at Welford Theale, Berkshire. *Proc. Conf. on In situ Investigations into Soils and Rocks*, British Geotechnical Society, London, pp. 23-29.
1091. Lake L.M. and Simons N.E. (1975): Some observations on the settlement of a four storey building founded on chalk at Basingstoke, Hampshire. *Proc. Conf. on Settlement of Structures*, BGS Cambridge, Pentech Press, London, pp. 283-291.
1092. Lama R.D. and Vutukuri V.S. (1978): Handbook on mechanical properties of rocks. Trans Tech Publications, Clausthal, Germany, 1978, 1650 p.
1093. Lanaro F. (2000): A random field model for surface roughness and aperture of rock fractures. *Int. J. Rock. Mech. Min. Sci.*, 37, pp. 195-210.
1094. Lanaro F. (2001): Geometry, mechanics and transmissivity of rock fractures. (PhD thesis). Division of Engineering Geology, Royal Institute of Technology, Stockholm, Sweden; 2001.
1095. Lambe T.W. and Whitman R.V. (1969): Soil Mechanics. Wiley.
1096. Lancaster-Jones P.F.F. (1975): The interpretation of the lugeon water test. *Q. J. Eng. Geol.*, 8, pp. 151-1 54.
1097. Lane K.S. (1948): Discussion on A.M. Casagrande: Classification and identification of soils. *Trans. of Am. Soc. of Civil Engrn.*, Vol. 113, pp. 950 - 951.
1098. Lang A., Kendorski F. and Chawla K. (1976): Effect of rapid water pressure fluctuations on unlined water tunnel stability. *Proc. of Rapid Excavation and Tunneling Conference*, Las Vegas, Nevada, 1976, pp. 417-429.
1099. Lang T.A. (1961): Theory and practice of rockbolting. *Trans Amer. Inst. Min. Engrs* 220, pp. 333-348.
1100. Langefors U. and Khilstrom B. (1973): The modern technique of rock blasting. 2nd edn. New York: Wiley. 405 p.
1101. Langille C.C. and Burtney M.W. (1992): Effectiveness of shotcrete and mesh support in low energy rockburst conditions at INCO's Creighton mine. In *Rock support in mining and underground construction*, Proc. int. symp. rock support, Sudbury, (eds. P.K. Kaiser and D.R. McCreath), pp. 633-638. Rotterdam: Balkema.
1102. LaPointe P.R. (1988): A method to characterize fracture density and connectivity through fractal geometry. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, Vol 25, No. 6., pp. 421-429.
1103. Lappalainen P., Pulkkinen J. and Kuparinen J. (1984): Use of steel strands in cable bolting and rock bolting. In *Rock bolting: theory and application in mining and underground construction*, (ed. O. Stephansson), pp. 557-562. Rotterdam: Balkema.
1104. Larsson S., Stille H. and Olsson L. (2005): On horizontal variability in lime- cement columns in deep mixing, *Géotechnique* 55, No 1, pp. 33-46.

1105. Lau J. S. O. and Gorski B. (1991): The post failure behaviour of Lac du Bonnet grey granite. CANMET Divisional Report MRL 91-079(TR). Ottawa: Dept. Energy Mines and Resources, Canada.
1106. Lau J.S.O. and Chandler N.A. (2004): Innovative laboratory testing. Int J Rock Mech Min Sci 41, pp. 1427-1445
1107. Laue G. and Sager H.-J. (1987): Tunnelling under difficult rock conditions; the collapse and restoration of two sections of the Bochum Metro. Proc. Bochum Conference 1987. pp. 101 - 110.
1108. Lauffer H. (1958): Classification for tunnel construction. Geol Bauwesen 2(1), pp46–51 (in German).
1109. Laubscher D.H. (1977): Geomechanics classification of jointed rock masses – mining applications. Trans. Instn. Min. Metall. 86, pp. A1-8.
1110. Laubscher D.H. (1984): Design aspects and effectiveness of support systems in different mining conditions. Trans Instn. Min. Metall. 93, pp. A70 - A82.
1111. Laubscher D.H. and Taylor H.W. (1976): The importance of geomechanics classification of jointed rock masses in mining operations. In Exploration for rock engineering, (ed. Z.T. Bieniawski) 1, pp. 119-128. Cape Town: Balkema.
1112. Laubscher D.M. and Page C.H. (1990): The design of rock support in high stress or weak rock environments. Proc. 92nd Can. Inst. Min. Metall. AGM, Ottawa, Paper # 91.
1113. Laubscher D.H. and Jakubec, J. (2000): The IRMR/MRMR rock mass classification system for jointed rock masses. In: SME Annual Meeting, February 28–March 1, Salt Lake City, Utah, pp. 475–481.
1114. Lauffer H. (1958): Classification for tunnel construction (in German). Geologie und Bauwesen, Vol. 24, No. 1, pp. 46-51.
1115. Lauffer H. and Seeber G. (1961): Design and control of linings of pressure tunnels and shafts based on measurements of the deformability of the rock. Proc. ICOLD, Rome, 1961, Question 25, Reply 91, pp. 679-709.
1116. Lauffer H. (1985): Austria's contribution towards the development of water power. Supplement to Intl. Cong. on Large Dams, Lausanne, 1985, pp. 97-104.
1117. Lauffer-Innsbruck H. (1988): On rock classification regarding cutting. (in German). Felsbau, Vol. 6, pp. 137-149.
1118. Lauga H. (1969): The Peace River project: The underground powerplant. The Engineering Journal, October 1969, pp. 35-42.
1119. Laverty B.R. and Ludwig K.R. (1963): Design and performance of Mammoth Pool Power tunnel. ASCE, Journal of the Power Division, September 1963, pp. 9-43.
1120. Lawton F.L. (1959): Underground hydro electric power stations. The Engineering Journal, Vol. 42, January 1959, pp. 33-51, 67.
1121. Lawton F.L. and Sutherland J.G. (1957): Kemano pressure conduit engineering investigations. Proc. ASCE, Journal of the Power Division, Paper No. 1396, October 1957. 34 p.

1122. Leal-Gomes M.J.A. and Dinis-da-Gama C. (2007): New insights on the geomechanical concept of joint roughness. 11th Congress of the International Society for Rock Mechanics - Ribeiro & Sousa, Olalla & Grossmann (eds.).
1123. Leca E. (1989): Analysis of NATM and shield tunnelling in soft ground. PhD thesis Virginia Polytechnic and State University, Blacksburg, Virginia, USA, November 1989. 476 p.
1124. Lee Y.H., Carr J.R., Barr D.J. and Haas C.J. (1990): The fractal dimension as a measure of the roughness of rock discontinuity profiles. Int. J. Rock. Mech. Min. Sci. & Geomech. Abstr. (27)6, pp. 453-464.
1125. Lee Y.N. and Lo K.Y. (1993): The Swelling Mechanism of Queenston Shale. Canadian Tunnelling, 1993, pp.75-97.
1126. Lee H.S. and Ahn K.W. (2004): A prototype of digital photogrammetric algorithm for estimating roughness of rock surface. Geosc. J. 8(3), pp. 333–341.
1127. Leeman E.R. and Hayes D.J. (1966): A technique for determining the complete state of stress in rock using a single borehole. Proc. 1st Cong. Int. Soc. Rock Mech, Lisbon 2, pp. 17- 24.
1128. Lees D. J. (1995): Improving ground characteristics. Tunnels and Tunnelling, March 1995, pp. 33 - 36
1129. Leeyus L.A. (1961): Silver Falls, tunnel and surge tank design. The Engineering Journal, Vol. 44, March 1961, pp. 58-67.
1130. Legget R.F and Karrow P.F (1983): Geology in civil engineering. McGraw-Hill Book Company, 1340 p.
1131. Leggo P.J. and Leech C. (1983): Sub-surface investigation for shallow mine workings and cavities by the ground impulse radar technique. Ground Engineering, 16 (1), pp. 20-23.
1132. Leichnitz W. (1990): Analysis of collapses on the NATM tunnel construction sites of the new lines of the German Federal Railways. Underground Space Technology Vol. 5, No. 3, August 1990, pp. 199 – 203.
1133. Leichnitz W. and Schlitt W. (1987): Tunnelling in difficult rock conditions and their management in the case of the Kriebberg Tunnel. Proc. Bochum Conference 1987, pp. 91 - 100.
1134. Leichnitz W. and Schrewe F. (1986): Analysis of collapses on tunnel construction sites on the new lines of the German Federal Railways. Felsmechanik-Symposium, Aachen, Germany, February 1986.
1135. Lenz F., Marcher T. and Neumayr T. (2010): A9 Bosrucktunnel – design approaches for swelling rock. Geomechanics and tunneling, vol. 3, issue 5, pp. 597 – 608.
1136. Lewis M.R. and Moore D.P. (1989): Construction of the Downie Slide and Dutchman's Ridge drainage adits. Canadian Tunnelling (ed. Z. Eisenstein), pp. 163-172. Vancouver: Bi-Tech.
1137. Li L., Ouellet S. and Aubertin M. (2009): An improved definition of rock quality designation, RQDc. Proc. 3rd CANUS Rock Mechanics Symposium, Toronto, May.
1138. Lien R. (1980): Classification of rock drillability. (In Norwegian). Proc. Norwegian Nat. Tunnelling Conf., Oslo 1980, Tapir, pp. 27B1-27B3.

1139. Likos W.J. and Lu N. (2006): Pore scale analysis of bulk volume change from crystalline swelling in Na⁺- and Ca²⁺-smectite. *Clays and Clay Minerals*, Vol. 54, No. 4, pp. 516 – 529.
1140. Lillesand T.M. and Kiefer R.W. (1979): Remote Sensing and Image Interpretation. John Wiley, New York.
1141. Lilley L. F. and Essler R. D. (1994): Compensation grouting trial works at Redcross Way, London. Proc. Conference on ‘Grouting in the ground’. Thomas Telford Ltd, London 1994, pp. 313 - 326
1142. Lin D and Fairhurst C. (1988): Static analysis of the stability of three-dimensional blocky systems around excavations in rock. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.* 25 (3), pp. 139-147.
1143. Lindblom U.E. (1986): Developments in design methods for large rock caverns. General report, Proc. Symp. of Large Rock Caverns, Helsinki, 1986, pp. 1937-1948.
1144. Lindblom U., Ludvig B. and Axelsson H. (2005): The Göta Tunnel — an impervious rock structure in a sensitive geotechnical environment (in Swedish, summary in English). Proc. Bergmekanikdag 2005, SveBeFo.
1145. Lineham D. and Murphy V.J. (1962): Engineering seismology applications in metropolitan areas. *Geophysics*, 27 (2), pp. 213-220.
1146. Linkov A.M. (1992): Dynamic phenomena in mines and the problem of stability. Distributed by MTS Systems Corporation, 14000 Technology Drive, Eden Prairie, MN, USA, 55344. Notes from a course of lectures presented by Dr. Linkov as MTS Visiting Professor of Geomechanics at the University of Minnesota, Minneapolis, MN, USA.
1147. Lislerud A. (1988): Hard rock tunnel boring: Prognosis and costs. *Tunnelling and Underground Space Technology*, Vol. 3, No. 1, pp. 9 - 17.
1148. Little AL., Stewart J.C. and Fookes P.J. (1963): Bedrock grouting tests at Mangla Dam, West Pakistan. Proc. Symp. on Grouts and Drilling Muds in Engineering Practice, Butterworths, London, pp. 9 1-97.
1149. Liu S.C., Cheng Y. and Chang C.T. (1988): Design of the Mingtan cavern. Proc .symp. ISRM. on Rock Mech. and Power Plants, Madrid, pp. 199-208.
1150. Ljunggren C. and Klasson K. (1996): Rock stress measurements at the three investigation sites, Kivetty, Romuvaara and Olkiluoto, Finland. Work Report PATU-96-26e, Posiva Oy, Helsinki, Finland.
1151. Ljunggren C. (1998): Overcoring rock stress measurements in borehole KR6 at Hästholmen, Finland. Work Report 98-70, Posiva Oy, Helsinki, Finland.
1152. Lo K.Y., and Micic S. (2010): Evaluation of Swelling Properties of Shales for the Design of Underground Structures. Proc. WTC 2010, 36th ITA Congress, Vancouver, May, 8p..
1153. Lo K.Y. and Lee Y.N. (1990): Time-dependent deformation behaviour of Queenstone shale, Canadian Geotechnical Journal 27 pp. 461-471.
1154. Lo K.Y. (1989): Recent advances in design and evaluation of performance of underground structures in rocks. *Tunnelling and Underground Space Technology* 4 (2), pp. 171-183 (Keynote Address, Proc. 6th Canadian Tunnelling Conference, Niagara Falls, October 1986)

1155. Lo K.Y., Cooke B.H. and Dunbar D.D. (1987): Design of Buried Structures in Squeezing Rock in Toronto, Canada. Canadian Geotechnical Journal, Volume 24, pp. 232-241.
1156. Lo K.Y. and Yuen C.M.K. (1981): Design of tunnel linings for long term time effects. Canadian Geotechnical Journal 18, pp. 24-39.
1157. Lo K.Y., Devata M. and Yuen C.M.K. (1979): Performance of a shallow tunnel in a shaly rock with high horizontal stresses. Tunnelling '79, Proc. 2nd Intl. Symposium on Tunnelling. Institution of Mining and Metallurgy, London, England 9, pp.1-12.
1158. Lo K.Y., Wai R.S.C., Palmer J.H.L. and Quigley R.M. (1978): Time-dependent deformation of shaly rock in southern Ontario. Canadian Geotechnical Journal 15 (4), pp. 537-547.
1159. Lo K.Y., Cooke B.H. and Dunbar D.D. (1987): Design of Buried Structures in Squeezing Rock in Toronto, Canada. Canadian Geotechnical Journal, Volume 24, pp. 232-241.
1160. Lo K.Y. (1978): Regional distribution of in-situ horizontal stresses in rocks of Southern Ontario. Canadian Geotechnical Journal 15: 371-381.
1161. Lo K.Y. and Micic S. (2010): Evaluation of Swelling Properties of Shales for the Design of Underground Structures. Proc. WTC 2010, 36th ITA Congress, Vancouver, May, 8p.
1162. Logan J.M. and Teufel L.W. (1986): The effect of normal stress on the real area of contact during frictional sliding on rocks. Pure Appl. Geophys. 1986;124(3):471-85.
1163. Lombardi, G. (1981). Bau von Tunneln bei grossen Verformungen des Gebirges. Proceedings Tunnel 81.
1164. Lombardi G. and Deere D. (1993): Grouting design and control using the GIN principle. Water Power and Dam Constr., Vol. 45, No. 6.
1165. Londe P. (1965): Une methode d'analyse a trois dimensions de la stabilité d'une rive rocheuse. Annales des Ponts et Chaussees 135 (1), pp. 37-60.
1166. Londe P., Vigier G. and Vormerenger R. (1969): The stability of rock slopes, a threedimensional study. J. Soil Mech. Foundns Div., ASCE 95 (SM 1), pp. 235-262.
1167. Londe P., Vigier G. and Vormerenger R. (1970): Stability of slopes - graphical methods. J. Soil Mech. Fndns Div., ASCE 96 (SM 4), pp. 1411-1434.
1168. Lorig L.J. and Brady B.H.G. (1984): A hybrid computational scheme for excavation and support design in jointed rock media. In Design and performance of underground excavations, (eds E.T. Brown and J.A. Hudson), pp. 105-112. London: Brit. Geotech. Soc.
1169. Lottes G. (1972): The development of European pumped-storage plants. Water Power 24, pp. 22-33.
1170. Love A.E.H. (1927): A treatise on the mathematical theory of elasticity. New York: Dover.
1171. Louis C. (1969): A study of groundwater flow in jointed rock and its influence on the stability of rock masses. Imperial College, London, Rock Mechanics Report No. 10, 90 p.
1172. Louis C. and Perrot M. (1972): Three dimensional investigations of flow conditions at Grand Maison Damsite. Proc. Symp. Percolation Through Fissured Rock, Stuttgart.

1173. Ludwig K.R. and Olive R.T. (1980): James Bay powerhouses-layout and design criteria. ASCE Journal of the Energy Division, October, 1980, pp. 235-255.
1174. Lugeon M. (1933): Barrages et Géologie. Dunod, Paris.
1175. Lukins P.J. (1982): Considerations in the design of pressure tunnels. Master of Engineering Project Report, University of California, Berkeley, 1982, 80 p.
1176. Lunder P.J. and Pakalnis R. (1997): Determination of the strength of hard-rock mine pillars. CIM Bull., 90(1013): pp. 51–55.
1177. Lundholm B. (2000): Rock stress and rock stress measurements at Äspö. International Progress Report IPR-00-024, Swedish Nuclear Fuel and Waste Management Company, Stockholm, Sweden.
1178. Lundman P., Sjöberg J. and Lindfors U. (2004): Banverkets syn på bergmekanisk dimensionering med exempel från framtida projektberingshandbok (in Swedish). Bergmekanikdag 2004 (Stockholm, March 17, 2004), SveBeFo (Svensk Bergteknisk Forskning), pp. 21-30.
1179. Lutton R.J., Banks D.C. and Strohm W.E. (1979): Slides in the Gaillard Cut, Panama Canal Zone. In Rockslides and Avalanches (ed. B. Voight) 2, pp. 151-224. New York: Elsevier.
1180. Lynneberg T.L., Palmström A., Roska S. and Carstens K.J. (1986): Geology, design, construction and maintenance of Vardö sub-sea road tunnel. Int. conf. on Strait Crossings, Stavanger, Norway, 1986, pp. 623 – 641.
1181. Lysne O.K. (1971): Sand transport and sand traps in hydro power tunnels. Proc. Intl. Conf. on Pumped Storage Development and Its Environmental Effects, Madison, Wisconsin, September 1971, pp. 140-145.
1182. Løset F. (1990): Use of the Q-method for securing small weakness zones and temporary support.(in Norwegian). Norwegian Geotechnical Institute, internal report No. 548140-1, 40 p.
1183. Løset F. (1992): Support needs compared at the Svartisen road tunnel. Tunnels & Tunnelling, June 1992, 3 p.
1184. Løset F. (1997): Practical application of the Q-method (in Norwegian). Internal NGI report no. 592046-2, 40 p.
1185. MacEwan, D.M.C., (1960): Interlamellar Reaction of Clays. Clays and Clay Minerals no. 9 (1960), 431 p.
1186. Madan M. M. (1987): Construction of the Loktak tunnel with NATM; a mathematical approach to simplified design procedure for expediting execution. Indian Concrete Journal, Vol. 61, No. 4 (April 1987), pp. 101 – 106.
1187. Madan M.M. (1991): An analytical approach to tunnel construction. Tunnels & Tunnelling, May 1991, pp. 71-74.
1188. Madsen F.T. and Müller-Vonmoos M. (1989): The Swelling Behavior of Clays. Appl. Clay, Sci., 4, pp.143-156.
1189. Madsen F.T. and Nüesch R. (1991): The Swelling Behavior of Clay-Sulfate Rocks. Proceedings, 7th Int. Congress of the Int. Soc. for Rock Mechanics, ed. Wittke, W., 1, pp. 285-288. Aachen, Germany.

1190. Maeda K. (1955): Apparent resistivity for dipping beds. *Geophysics*, 20 (1), pp. 123-147.
1191. Maerz N.H., Franklin J.A. and Bennet C.P. (1990): Joint roughness measurement using shadow profilometry. *Int. J. Rock. Mech. Min. Sci. & Geomech. Abstr.*, vol. 27, No. 5, pp. 329-343.
1192. Mahar J. W., Parker H. W. and Wuellner W. W. (1975): Shotcrete practice in underground construction. Report for Department of Transportation, Federal Railroad Administration, Washington DC, August 1975, 369 p.
1193. Mahar J.W., Parker H.W. and Wuellner W.W. (1975): Shotcrete practice in underground construction. US Dept. Transportation Report FRA-OR&D, pp.75-90. Springfield, VA: Nat. Tech. Info. Service.
1194. Mahtab M.A. and Yegulalp T.M. (1986): Characterizing jointed rock for tunnel design. Proc. of Conf. on Large Underground Openings, Florence, Italy, pp. 613-619.
1195. Maidl B. (1978): Tunnelling with difficult rock behaviour. Proc. Bochum University conf., pp. 11 - 24.
1196. Maidl B. and Handke D. (1993): Overcoming a collapse in the Karawanken Tunnel. *Tunnels and Tunnelling*, June 1993, pp. 30 – 32.
1197. Mair R. J., Harris D. I., Love J. P., Blakey D. and Kettle C. (1994): Compensation grouting to limit settlements during tunnelling at Waterloo Station, London. *Tunnelling 94* published by Chapman & Hall, 1994, pp. 279 – 300.
1198. Makurat A. (1988): Practical application of the methods. Proc. NIF-Conf. on practical rock mechanics for tunnels and caverns, Trondheim, January 1989, 12 p.
1199. Malan D.F. and Bosman J. (1999). A viscoplastic approach to the modelling of time-dependent rock behaviour at Hartebeesfontein gold mine. Proceedings of the First Southern African Rock Engineering Symposium, Johannesburg, pp. 117-130.
1200. Malinverno A. (1990): A simple method to estimate the fractal dimension of a selfaffine series. *Geophys Res Lett* 1990;17:953-6.
1201. Mallard D.J. (1977): Discussion: Session 1 — Chalk. Proc. ICE Conf. on Piles in Weak Rock, pp. 177-180.
1202. Malm Y. (2005): Uppföljning av injekteringsarbeten — En studie av Nordlännen-Oxnared-Trollhättan (in Swedish). Master Thesis 04/06, Royal Institute of Technology, Division of Soil and Rock Mechanics, Stockholm.
1203. Malmgren L. (2007): Skadekartering block 33 och 25 i KUJ (in Swedish). LKAB. Internal LKAB report.
1204. Mandelbrot B.B. (1985): The fractal geometry of nature. New York: Freeman; 1983.
1205. Manev, G. and Avramova-Tacheva, E. (1970): On the variation of strength and resistance condition of the rocks in natural rock massif. Proc. 2nd Int. Congr. on Rock Mech., Belgrade, Vol. 1, pp. 59-65.
1206. Marachi N.D., Chan C.K. and Seed H.B. (1972): Evaluation of properties of rockfill materials. *J. Soil Mechs. Fdns. Div. ASCE* Vol. 98, No. SM1, pp. 95-114.
1207. Marchetti S. and Crapps D.K. (1981): Flat Dilatometer Manual. GPE Inc., USA.

1208. Marinos P. and Hoek E. (2000): GSI: A geologically friendly tool for rock mass strength estimation. Proceedings GeoEng2000 Conference, Melbourne, pp. 1422-1442.
1209. Marinos V., Marinos P. and Hoek E. (2005): The geological strength index: applications and limitations. Bull. Eng. Geol. Env. 64, pp. 55 - 65.
1210. Marinos P., Hoek E. and Marinos V. (2006): Variability of the engineering properties of rock masses quantified by the geological strength index: the case of ophiolites with special emphasis on tunnelling. Bull. Eng. Geol. Env. 65, pp. 129 - 142.
1211. Marsal, R.J. (1973): Mechanical properties of rockfill. In Embankment Dam Engineering – Casagrande Volume. Edited by R.C. Hirschfeld and S.J. Poulos, published by J. Wiley & Sons, New York, pp. 109-200.
1212. Marshall C.E. (1949): The Colloid Chemistry of the Silicate Minerals. New York: Academic Press, P. 54.
1213. Marshall D. (1963): Hangingwall control at Willroy. Can. Min. Metall. Bull. 56, pp. 327-331.
1214. Marsland A. (1986): The choice of test methods in site investigation. In A.B. Hawkins (ed.) Site Investigation Practice: Assessing BS 5930, Eng. Geol. Special Pub. No. 2, Geological Society, pp. 289-298.
1215. Marsland A. and Quartermain R. (1974): Further developments of multipoint magnetic extensometers for use in highly compressible ground. Géotechnique, 24, pp. 429-433.
1216. Martin, D. (1984) "Bearings and Links Delay TBM's Uphill Drive", Tunnels and Tunneling, January, 1984, pp. 29-32.
1217. Martin C.D. (1988): TBM tunnelling in poor and very poor rock conditions. Tunnels and Tunnelling, March 1988, pp. 22-28.
1218. Martin C.D. (1990): Characterizing in situ stress domains at the AECL Underground Research Laboratory. Can. Geotech. J. 27, pp. 631-646.
1219. Martin D. (1991): Coping with stress gives Karawanken tunnellers a headache. Tunnels and Tunnelling, Summer 1991. NATM Special Issue, pp. 21 – 27.
1220. Martin C.D., Read R.S. and Chandler (1990): Does scale influence in situ stress measurements? - Some findings at the Underground Research Laboratory. Proc. Int. Conf. on Scale Effects in Rock Masses, Balkema, Rotterdam, pp. 307 - 315.
1221. Martin C.D., Read R.S. and Lang P.A. (1990): Seven years of in situ stress measurements at the URL - an overview. In Proc. 31st U.S. Symp. on Rock Mechanicis, Golden (Ed.W. Hustrulid and G. Johnson), pp. 15–25. A.A. Balkema, Rottterdam.
1222. Martin C.D. and Christiansson R. (1991): Overcoring in highly stressed granite – The influence of microcracking. Int. J. Rock Mech. Min. Sci.&Geomech. Abstr., 28(1): pp. 53–70.
1223. Martin C.D. and Simmons, G.R. (1992): The Underground Research Laboratory, an opportunity for basic rock mechanics. ISRM News Journal 1(1), pp. 5-12.
1224. Martin C.D. (1993): The strength of massive Lac du Bonnet granite around underground openings. Ph.D. thesis, Winnipeg, Manitoba: Dept. Civil Engineering, University of Manitoba.

1225. Martin C.D. and Chandler N.A. (1993): Stress heterogeneity and geological structures. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, 30(7): pp. 993–999.
1226. Martin C.D. and Chandler N.A. (1994): The progressive fracture of Lac du Bonnet granite. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, 31(6): pp. 643–659.
1227. Martin C.D. and Stimpson B. (1994): The effect of sample disturbance on laboratory properties of Lac du Bonnet granite. *Can. Geotech. J.*, 31(5): pp. 692–702.
1228. Martin C.D., Read R.S. and Dzik E.J. (1995): Near-face cracking and strength around underground openings. In Proc. 2nd Int. Conf. on Mechanics of Jointed and Faulted Rock, Vienna (Ed. H. P. Rossmanith), pp. 747–752. A.A. Balkema, Rotterdam.
1229. Martin C.D., Kaiser P.K. and Alcott J.M. (1996): Predicting the depth of stress induced failure around underground openings. In Proc. 49th Canadian Geotechnical Conference, St. John's, vol. 1, pp. 105–114. C-CORE, St. John's.
1230. Martin C.D., Yazici S., Young R.P. and Murdie R. (1997): Low stress damage mechanisms around underground openings in brittle rocks. In Proc. 50th Canadian Geotechnical Conference, Ottawa (Ed. G. E. Bauer), vol. 1, pp. 110–117.
1231. Martin C.D. (1997): Seventeenth Canadian Geotechnical Colloquium: The effect of cohesion loss and stress path on brittle rock strength. *Can. Geotech. J.*, 34(5): pp. 698–725.
1232. Martin C.D., Diederichs M. and Hajiabdolmajid V. (1998): Damage mechanisms in brittle rock masses. In Proc. 51st Canadian Geotechnical Conference, Edmonton, vol. 2, pp. 581–588.
1233. Martin C.D., Kaiser P.K. and McCreath D.R. (1999): Hoek-Brown parameters for predicting the depth of brittle failure around tunnels. *Can. Geotech. J.*, 36(1): pp. 136–151.
1234. Martin C.D., Tannant D.D., Yazici S. and Kaiser P.K. (1999): Stress path and instability around mine openings. In Proc. 9th, ISRM Congress on Rock Mechanics, Paris (Ed. G. Vouille and P. Berest), vol. 1, pp. 311–315. A. A. Balkema, Rotterdam.
1235. Martin C.D. and Maybee W.G. (2000): The strength of hard-rock pillars. *Int. J. Rock Mech. Min. Sci.*, 37(8):1239–1246.
1236. Martin C.D. and Christiansson R. (2009): Estimating the potential for spalling around a deep nuclear waste repository in crystalline rock. *Int. J. of Rock Mech. & Mining Sciences* 46 (2009), pp. 219–228.
1237. Martin C.D. and Christiansson R. (2010): Evaluating the design risks for deep underground excavations using information from surface based drill holes. Proceedings of Word Tunneling Congress, IATES – ITA, Vancouver, May 2010.
1238. Martin R.E. and Beebe W.C. (1985): Thistle Slide Project: Rail tunnelling and tunnelling techniques to drain Lake Thistle. Proc. Rapid Excavation and Tunnelling Conference, 1985, New York, pp. 678-707.
1239. Mason R. (1978): Petrology of the Metamorphic Rocks. George Allen & Unwin, London.
1240. Masur C.I. and Kaufman R.I. (1962): Dewatering. In Foundation Engineering (ed. G.A. Leonards), pp. 241-350. New York: McGraw- Hill.
1241. Matheson J.L. (1939): An aerial survey of the estuary of the River Dee, employing a simple method of rectifying oblique photographs. *J. Inst. Civ. Eng.*, 10 (Paper 5157), pp. 47-54.

1242. Matherson G.D. (1983): Rock stability assessment in preliminary site investigations — graphical methods. TRRL Report LR 1039, Transport Research Laboratory, Crowthorne, Berks.
1243. Mathews K.E. and Edwards D.B. (1969): Rock mechanics practice at Mount Isa Mines Limited, Australia. Proc. 9th Commonwealth min. metall. congr., Paper 32. London: Instn Min. Metall.
1244. Mathews K.E., Hoek E., Wyllie D.C. and Stewart S.B.V. (1981): Prediction of stable excavations for mining at depth below 1000 metres in hard rock. CANMET Report DSS Serial No. OSQ80-00081, DSS File No. 17SQ.23440-0-9020. Ottawa: Dept. Energy, Mines and Resources.
1245. Matthews M.C. (1993): The mass compressibility of fractured chalk. PhD. thesis, University of Surrey.
1246. Mathews S.M., Tillman V.H. and Worotnicki G. (1983): A modified cablebolt system for support of underground openings. Proc. Aust. Inst. Min. Metall. annual conf., Broken Hill. pp. 243-255.
1247. Matthews S.M., Thompson A.G., Windsor C.R. and O'Bryan, P.R. (1986): A novel reinforcing system for large rock caverns in blocky rock masses. In Large rock caverns, (ed. K.H.O. Saari), pp. 1541-1552. Oxford: Pergamon.
1248. Mattimoe J.J., Tinney E.R. and Weston W. (1964): Rock trap experience in unlined tunnels. ASCE Power Journal, Paper No. 4067, October, 1964, pp. 29-45.
1249. Matt P., Thurnherr F. and Uherkovich L (1978): Prestressed concrete pressure tunnels. Water Power and Dam Construction, May 1978, pp. 23-31.
1250. Matula M. (1969): Engineering geologic investigations of rock heterogeneity. 11th US Symp. on Rock Mech. pp. 25-42.
1251. Matula M. and Holzer R. (1978): Engineering topology of rock masses. Proc. of Felsmekanik Kolloquium, Grundlagen und Anwendung der Felsmekanik, Karlsruhe, Germany, 1978, pp. 107-121.
1252. Maury V. (1976): An example of underground storage in soft rock (chalk). Proc. Int. Symp. Rock Store, pp. 681-689.
1253. Maybee W.G. (1999): Pillar design in hard brittle rocks. Master's thesis, School of Engineering, Laurentian University, Sudbury, ON, Canada.
1254. Maxwell G.M. (1976): Old mineshafts and their location by geophysical surveying. Q. J. Eng. Geol., 9 (4), pp. 283-290.
1255. McCaig I.W. and Folberth P.J. (1962): The buckling resistance of steel liners for circular pressure tunnels. Water Power, July 1962, pp. 272-278.
1256. McClintock, F.A. and Walsh, J.B. (1962): Friction on Griffith cracks under pressure. Proc. 4th National Congress Appl. Mech., pp. 1015-1021.
1257. McCreath D.R. and Kaiser P.K. (1992): Evaluation of current support practices in burst-prone ground and preliminary guidelines for Canadian hardrock mines. In Rock support in mining and underground construction, proc. int. symp. rock support, Sudbury, (eds P.K. Kaiser and D.R. McCreath), pp. 611-619. Rotterdam: Balkema.

1258. McFeat-Smith I., Nieuwenhuijs G.K. and Lai W.C. (1986): Application of seismic surveying, orientated drilling and rock classification for site investigation of rock tunnels. Proc. Int. Conf. Rock Engineering and Excavation in an Urban Environment, MIT, pp. 249-261.
1259. McGarr A. (1978): State of stress in the earth's crust. Ann. Rev. Earth Planet. Sci., 6:405–436.
1260. McIntyre J.S. and Hagan T.N. (1976): The design of overburden blasts to promote highwall stability at a large strip mine. Proc. 11th Canadian Rock Mech. Symp., Vancouver.
1261. McKelvey J.G., Schultz E.A., Heli T.A.B. and Blindheim O.T. (1996): Geotechnical Analysis in South Africa (Inanda-Wiggins Phase 2, Construction of Emolweni and Clermont Tunnels, Predicted and Actual TBM Performance). World Tunnelling, November, pp. 377-390.
1262. McLamore R. and Gray K.E. (1967): The mechanical behaviour of anisotropic sedimentary rocks. Amer. Soc. Mech. Engrs. Trans., Series B, 1967, pp. 62-76.
1263. McLean A.C. and Gribble C.D. (1985): Geology for Civil Engineers. 2nd edn, Unwin Hyman, London, 314 p.
1264. McMahon B.K. (1971): A statistical method for the design of rock slopes. Proc. 1st Australia-New Zealand Conf. on Geomechanics, Melbourne 1, pp. 314-321.
1265. McMahon B.K. (1975): Probability of failure and expected volume of failure in high rock slopes. Proc. 2nd Aust.-New Zealand Conf. on Geomech., Brisbane.
1266. McMahon K. (1985): Some practical considerations for the estimation of shear strength of joints and other discontinuities. In: Proceedings of the international symposium on fundamentals of rock joints. Bjorkliden; 1985, pp. 475-85.
1267. McQuaid J. (1996): Rationale, methodology and place of risk assessment in European Union and United Kingdom legislation. IMM Journal, Minerals Industry International, London, January 1996.
1268. McRae M. (1983): Lining design for pressure tunnels. Master of Engineering Project Report, University of California, Berkeley, 1983, 65 p.
1269. Meehan, R.L., Dukes, M.T. and Shires, P.O. (1975): A case history of expansive claystone damage. ASCE J. Geotech. Eng. Div., Vol. 101, GT9, pp. 933-947.
1270. Meigh A.C. and Greenland S.W. (1965): In situ testing of soft rocks. Proc. 6th Int. Conf Soil Mech. and Found. Eng., Montreal, Volume 1, pp. 73-76.
1271. Melbye T. A. (1994): Shotcrete for rock support a publication. Prepared for Master Builders Technologies, Italy, July 1994, 152 p.
1272. Merrison A. W. (1973): Official enquiry into the basis of design and method of erection of steel box girder bridges report. 4 volumes, Department of Environment Committee, HMSO, London. 1973.
1273. Merritt A.H. (1972): Geologic prediction for underground excavations. Proc. North American rapid excav. tunneling conf., Chicago, (eds K.S. Lane and L.A. Garfield) 1, pp. 115-132. New York: Soc. Min. Engrs, Am. Inst. Min. Metall. Petrolm Engrs.
1274. Merritt A.H. and Baecher G.B. (1981): Site characterization in rock engineering. 22nd U.S. Symp. on Rock Mechanics, pp. 49-66.

1275. Milne D. (1988): Suggestions for Standardisation of Rock Mass Classification. MSc Dissertation, Imperial College, University of London, 123 p.
1276. Milne D., Germain P., Grant D. and Noble P. (1991): Systematic rock mass characterization for underground mine design. International Congress on Rock Mechanics, A.A. Balkema, Aachen, Germany.
1277. Milne D., Germain P., Grant D. and Noble P. (1991): Field observations for the standardization of the NGI classification system for underground mine design. Intn. congr. on Rock Mechanics, A.A. Balkema, Aachen, Germany.
1278. Milne D., Germain P. and Potvin Y. (1992): Measurement of rock mass properties for mine design. Proc. Int. Conf. Eurock '92, Thomas Telford, London, pp. 245-250.
1279. Milne D., Hadjigeorgiou J. and Pakalnis R. (1998): Rock mass characterization for underground hard rock mines. Tunnelling and underground space technology, Vol. 13, No .4, pp. 383 - 391.
1280. Milne D., Palmström A. and Peck W. (2002): Reply to Barton's comments on GeoEng2000 workshop summary. Published in ISRM News 7-2, 2002. Under Letter to the Editor of the ISRM News Journal. 18 February 2002 regarding Journal article of (December 2001)
1281. Milne D., Hawkes C. and Hamilton P. (2009): A new tool for the field characterization of joint surfaces. RockEng09: Proceedings of the 3rd CANUS Rock Mechanics Symposium, Toronto, Ed. M. Diederichs and G. Grasselli.
1282. Misra B. (1972): Correlation of rock properties with machine performance. Ph.D Thesis, Leeds University, 1972.
1283. Misterek D.L. (1964): Measurement of reinforcement steel stress and groundwater pressure around a concrete-lined pressure tunnel. U.S. Dept. of the Interior, Bureau of Reclamation, Technical Memorandum No. 663, October 1964, 54 p.
1284. Mitchell J.K. (1993): Fundamentals of Soil Behavior, John Wiley. 560 p.
1285. Mitri H.S., Edrissi R. and Henning, J. (1994): Finite element modelling of cable-bolted stopes in hardrock ground mines. In:SME Annual Meeting., New Mexico, pp.94–116.
1286. Moalli S., Redmond S. Brox D.R., Procter P. and Jezek D. (2008): TBM Tunneling at the Ashlu Creek Hydroelectric Project. 20th Tunneling of Association of Canada Conference, Niagara Falls, Ontario. 2008.
1287. Mogi, K. (1962): The influence of the dimensions of specimens on the fracture strength of rocks, Bull, Earthquake Res. Inst. Tokyo Univ., Vol. 40, 1962, pp. 175-185.
1288. Mogi K. (1966): Pressure dependence of rock strength and transition from brittle fracture to ductile flow. Bulletin Earthquake Res. Inst. (Japan), 44: pp. 215–232.
1289. Mogi K. (1967): Effect of the intermediate principal stress on rock failure. Journal of Geophysical research, v.72, no 20, pp. 5117-5131.
1290. Mogi K. (1970): Effect of triaxial stress system on rock failure. Rock Mech. in Japan, Vol. 1, pp. 53-55.
1291. Mogi K. (1971): Fracture and flow of rocks under high triaxial compression. J. Geophys. Res., Vol. 76, No, 5, 1971, pp. 1255-1269.

1292. Mollard J.D. (1962): Photo analysis and interpretation in engineering geology investigations: A Review. In T. Fluhr and R.F. Legget (eds), *Reviews in Engineering Geology*, The Geological Society of America, New York, pp. 105-127.
1293. Moller D.W., Minch H.L. and Welsh J.P. (1984): Ultrafine cement pressure grouting to control groundwater in fractured granite rock. *Innovative Cement Grouting*, ACI Publication SP-83, pp. 129-151.
1294. Monssees J.E. (1996): Soft ground tunnelling. In Bickel J.O., Kuesel T.R. and King E.H. (ed.) *Tunnel Engineering handbook*, Chapman & Hall, Ch. 6, pp. 97-121.
1295. Moody W.T. (1959): The importance of geologic information as a factor in tunnel- lining design. *Engineering Geology Case Histories, Number 3*, Geological Society of America, Division of Engineering Geology, May 1959.
1296. Mooney H.M. and Orellana E. (1966): Master Tables and Curves for Vertical Electrical Sounding over Layered Structures. Interciencia, Madrid.
1297. Mooney H.M. and Wetzel W.W. (1956): *The Potentials about a Point Electrode and Apparent Resistivity Curves for a Two-, Three- and Four-layer Earth*. University of Minnesota Press, Minneapolis.
1298. Moore D.P., Imrie A.S. and Baker D.G. (1991): Rockslide risk reduction using monitoring. Proc. Can. Dam Safety Assoc. Annual Meeting, Whistler, British Columbia.
1299. Moore J.R., Echard J.D. and Neil G.G. (1980): Radar detection of voids under concrete highways. IEEE Int. Radar Conf., CH 1493-6/80/0000-0131.
1300. Moreno Tallon E. (1980): Application of the geomechanical classification for the tunnels at Pajares. (in Spanish). *Curso de Sostenimientos activos en Galerias y Tuneles*, Madrid, Fundacion Gomez-Pardo.
1301. Moreno Tallon, E. (1987): Rock-masses characterization for underground excavation purposes. VI Australian Tunnelling Conference, Melbourne 1987.
1302. Moretto, O. (1982): Mecánica de rocas en el complejo hidroeléctrico Río Grande No. 1. Proc. Primer. Cong. Sudamericano de Mecánica de Rocas, Bogotá, Colombia.
1303. Morfeldt C.-O., Bergman M. and Lundström L. (1973): Rock mass investigations; evaluation of methods (in Swedish). Swedish Building Research, report R34: 1973, 116 p.
1304. Morfeldt C.-O. (1976): Caverns and tunnels in rock; engineering and geological follow-up (in Swedish). Swedish Building Research, report R15: 1976, 106 p.
1305. Morgan D.R. (1993): Advances in shotcrete technology for support of underground openings in Canada. In *Shotcrete for underground support V*, proc. engineering foundation conf., Uppsala, (eds J.C. Sharp and T. Franzen), pp. 358-382. New York: Am. Soc. Civ. Engrs.
1306. Morgan G.C. (1991): Qualification of risks from slope hazards. In *Landslide Hazards in the Canadian Cordillera*. Geological Association of Canada, Special Publication.
1307. Morgan G.C., Rawlings G.E. and Sobkowicz J.C. (1992): Evaluation of total risk to communities from large debris flows. *Geotechnical and Natural Hazards*, Vancouver Geotechnical Society and Canadian Geotechnical Society, Vancouver, BC, Canada, May 6-9, 1992, pp. 225—236.

1308. Morgenstern N.R. and Vaughan P.R. (1963): Some observations on allowable grouting pressures. Proc. Symp. on Grouts and Drilling Muds in Engineering Practice, Butterworths, London, pp. 36-42.
1309. Morgenstern N.R. and Eigenbrod K.D. (1974): Classification of argillaceous soils and rocks. J. Geotech. Eng. Div., ASCE 100:1137-1156.
1310. Morgenstern N.R., and Balasubramonian, B.I. (1980): Effects of pore fluid on the swelling of clay-shale. Proceedings, 4th International Conference on Expansive Soils, Denver, Colo., pp. 190-205.
1311. Morgenstern N.R. (1991): Limitations of stability analysis in geo-technical practice. Geotecnia 61: pp. 5-19.
1312. Morrison R.G.K. (1942): Report on the rockburst situation in Ontario mines. Trans. Can. Inst. Min. Metall. 45.
1313. Morrison R.G.K. (1976): A philosophy of ground control: a bridge between theory and practice. rev. edn. Montreal: Department of Mining and Metallurgical Engineering, McGill University, 182 p.
1314. Morrise P. and Stoter H.J. (1983): Open-cut slope design using probabilistic methods. Proc. 5th. Cong. ISRM., Melbourne 1 , pp. C107-C113. Rotterdam: Balkema
1315. Movinkel T. and Johannessen O. (1986): Geologic parameters for hard rock tunnel boring. Tunnels & Tunnelling, April 1986, pp. 45-48.
1316. Moy D., Hsieh C.S. and Li, H.C. (1990): The introduction of steel fiber shotcrete to underground cavern support in Taiwan. Shotcrete for Underground Support, Proc. of the Engineering Foundation Conf. on Shotcrete V, Uppsala, Sweden.
1317. Moy D. and Hoek E. (1989): Progress with the excavation and support of the Mingtan power cavern roof. Proc. Rock Cavern Seminar - Hong Kong (eds A.W. Malone and P.G.D. Whiteside), pp. 235-245. London: Institution Mining and Metallurgy.
1318. MTA (2012) Map on karst area of Turkey. Mineral Research and Exploration General Directorate of Turkey. http://www.mta.gov.tr/v2.0/daire-baskanliklari/jed/index.php?id=karst_magara
1319. Muir Wood A.M. and Caste G. (1970): In situ testing for the Channel Tunnel. Proc. Conf on In-situ Investigations in Soils and Rocks. BGS, London, pp. 109-116.
1320. Muir Wood A.M. (1979): Ground behaviour and support for mining and tunnelling. Tunnels and Tunnelling, Part 1 in May 1979 pp. 43-48, and Part 2 in June 1979, pp. 47-51.
1321. Muller J. (1979): Josef Stini. Contributions to engineering geology and slope movement investigations. In Rockslides and Avalanches (ed. B. Voight), Part 2, pp. 95-109. New York: Elsevier.
1322. Muir Wood A. M. (1987): To NATM or not to NATM. 35th Geomechanics Colloquy, Salzburg, October 1996. Published as an article in Felsbau 5 (1987), pp. 26 – 30.
1323. Muir Wood A. M. (1990): The observational method revisited. Proc. 10th Southeast Asian Geotechnical Conference, Taipei, April 1990, Volume 2, pp. 37 - 42.

1324. Muir Wood A. M. (1994): Control of uncertainty in geotechnical engineering. 'Geotechnical Engineering: Emerging trends in Design and Practice' (Editor K R Saxena) published by Oxford and IBH Publishing Ltd (India), pp. 155 - 175.
1325. Muir Wood A. M. and Kirkland C. J. (1985): Tunnelling hazards and risk sharing. 'Tunnelling 85', Institution of Mining and Metallurgy, London (1985), pp. 295 – 300.
1326. Muir Wood A. (2000): Tunnelling management by design. E & FN SPON.
1327. Muller L. (1959): The European approach to slope stability problems in open pit mines. Proc. 3rd Symp. Rock Mech., Colorado School Mines Quarterly, 54, pp. 114- 133.
1328. Müller L. (1963): Rock construction (in German). Ferdinand-Enke-Verlag, Stuttgart, 624 p.
1329. Müller L. and Pacher P. (1965): Modellversuche zur Klarung der Bruchefahr zur gekluffter Medien. Rock Mech. and Engr. Geol., Supplement 2, 1965, pp. 7- 24.
1330. Müller L., Bock H. and Müller K. (1970): Structural geology of rocks - rock mechanics in construction (in German). Wilhelm Ernst & Sohn Verlag, Berlin.
1331. Müller L. (1978a): Removing misconceptions on the new Austrian tunnelling method. Tunnels and Tunnelling, Oct. 1978, pp. 29-32. Also in Tunnels and Tunnelling, Special NATM edition, Summer 1990, pp. 15 – 18.
1332. Muller-Salzburg L. (1978b): The reasons for unsuccessful applications of the New Austrian Tunnelling Method. Proc. Int. Tunnelling Symposium, Tokyo, June 1978, pp. 67 - 72. Pergamon Press.
1333. Muller-Salzburg L. (1979): The importance of the length and time of closing the ring in NATM tunnelling. Inst. Soc. Rock. Mech. Congress, Montreux 1979. Proceedings (4. Vol. 1), pp. 511 – 519.
1334. Müller L. (1982): The influence of engineering geology and rock mechanics in tunnelling. Proc. IV Congr. Intn. Ass. Engn. Geol., New Delhi, pp. ix 177 - 186.
1335. Murata S. and Saito T. (2003): A new evaluation method of JRC and its size effect, in: ISRM 2003, Technology roadmap for rock mechanics, South African Institute of Mining and Metallurgy, pp. 855-858.
1336. Muskhelishvili, N.I. (1953): Some basic problems of the mathematical theory of elasticity. 4th edn, translated by J.R.M. Radok. Gronigen: Noordhoff.
1337. Mutschler T. and Natau O. (1991): Further developments for the determination of the stress-strain behaviour of jointed rock mass by large scale tests. Proc. 7th. Congr. of ISRM, Aachen, pp. 1557- 1560.
1338. Mutschler T., Kramar U., Maximiliano R. Vergara M.R. and Triantafyllidis T. (2012): Influence of Hematite Coating on the Activation of the Swelling Potential of Smectite-Bearing Rocks. Rock Mech. Rock Eng., July 2012, 13 p.
1339. Myrset O. and Lien R. (1982): High pressure tunnel systems at Sima power plant. ISRM Symp. on Rock Mechanics: Caverns and Pressure Shafts, Aachen, May 1982, pp. 667-676.
1340. Myrvang A. (1983): Practical use of rock stress and deformation measurements. Norwegian Soil and Rock Engineering Association, Publ. No.2, pp. 9-14.

1341. Myrvang A. (1991): Rock stress and rock stress problems in Norway. In: Hudson J.A. (ed.): Comprehensive Rock Engineering, Pergamon Press,
1342. Myrvang A.M. (1991): Estimation of in situ compressive strength of rocks from in situ stress measurements in high stressed rock structures. Proceedings. 7th ISRM Congress on rock mechanics. Aachen. Edited by W.Wittke. A.A. Balkema. Rotterdam, pp. 573-575.
1343. Myrvang A.M., Alnaes L., Hansen S.E., and Davik K.I. (1997): Heavy spalling problems in road tunnels in Norway – Long time stability and performance of sprayed concrete as rock support. International symposium on rock support: applied solutions for underground structures. Lillehammer, 22-25 June 1997. Norwegian Society of Chartered Engineers, Oslo. ISBN 82-91341-18-4.
1344. Myrvang A.M. (1997): Evaluation of in-situ rock stress measurements at the ZEDEX test area. Progress Report HRL-97-22, Swedish Nuclear Fuel and Waste Management Company, Stockholm, Sweden.
1345. Myrvang A., Blindheim O.T. and Johansen E.D. (1998): Rock Stress Problems in Bored Tunnels. Norwegian TBM tunnelling, 30 years of experience with TBMs in Norwegian tunnelling, Publication No. 11, Norwegian Soil and Rock Engineering Association, Norwegian Tunnelling Society, NFF, pp 71-77.
1346. Naber G. (1960): The Jansen pumped-storage scheme. Water Power, August, 1960, pp. 312-319.
1347. Nahin, P.G. (1954): Swelling of Clay under Pressure. Clays and Clay Minerals no. 3 (1954), p.174.
1348. Nakano R. (1979): Geotechnical properties of mudstone of Neogene Tertiary in Japan. Proc. Int. Symp. Soil Mechanics, Oaxaca, pp. 75 - 92.
1349. Narr, W., Suppe, J. (1991): Joint spacing in sedimentary rocks. J. of Structural Geol., Vol 13, No. 9, pp 1037 - 1048.
1350. Natau O.P., Fröhlich B.O. and Mutschler T. (1983): Recent developments of the large-scale triaxial test. Proc. 7th. Congr. of ISRM, Melbourne, pp. 1557-1560.
1351. Natau O. (1990): Scale effects in the determination of the deformability and strength of rock masses. In: Proceedings of the first international workshop on scale effects in rock masses, 7-8 June, pp. 77-89 (A. Pinto Da Cunha (Ed)), Loen, Norway, Balkema, Rotterdam. ISBN 90 6191 126 5.
1352. Natau O., Bühler, Keller S. and Mutschler T. (1995): Large scale triaxial tests in connection with a FEM analysis for the determination of the properties of a transversal isotropic rock mass. Proc. 8th Int. Congress on Rock Mechanics, Tokyo, 9 p.
1353. National Agency for Finite Elements and Standards (1993): Quality system supplement to ISO 9001 relating to finite element analysis in the design and validation of engineering products. Issue 1.3, 2 July 1993.
1354. Navalon N. (1986): The construction of Spain's Cortes-La Muela scheme. Water Power and Dam Construction, February, 1986, pp. 37-41.
1355. Nazik L. (1989): Geological and geomorphological and ecological characteristics determined by the morphology of the cave. Jeomorfoloji Dergisi. Ankara, 17, pp. 53–62. (in Turkish).

1356. Nazik L., Mengi H., Öznel E., Bircan A. and Beydeş S. (1995): Natural caves around Zonguldak. Mineral Research and Exploration General Directorate of Turkey (MTA), Report No:9764, Ankara (in Turkish).
1357. Nazik L., Törk K., Tuncer K., Öznel E., İnan H. and Savaş F. (2005): Caves of Turkey. In: Proc. of Symp. on National Cave Days, Konya, Turkey, pp.31-46 (in Turkish).
1358. NBF (1993): Shotcrete. Norwegian Concrete Association (NB), Publ. No. 7, 69 p.
1359. NBG - Norwegian group of rock mechanics (1985): Handbook in engineering geology - rock. (in Norwegian). Norwegian rock mechanics group (NBG). Tapir, 140 p.
1360. NBG - Norwegian group of rock mechanics (2000): Handbook. Engineering geology and rock engineering. Norwegian Soil and Rock Engineering Association, Oslo, vol. 2. 250 p.
1361. NBR (1997): Norwegian Standard 3480. Geotechnical Planning. (In Norwegian). Norwegian Council for Building Standardisation (NBR), 11 p.
1362. NBR (1988): National Application Document (NAD) for NS-ENV 1997-1:1997 Eurocode 7: Geotechnical design. Norwegian Council for Building Standardisation (NBR), 14 p.
1363. Nelson, P.P, O'Rourke, T.D. and Kulhawy, F.H. (1983): Factors affecting TBM penetration rates in sedimentary rocks, Proc. 24th US Symp. Rock Mech., College Station, pp. 227-236.
1364. Nelson, P.P, O'Rourke, T.D. and Kulhawy, F.H. (1984): Cutter wear and its influence on tunnel boring machine performance. Proc. Int. Conf. on Design and Performance of Underground Excavations, Cambridge, England, pp. 239-246.
1365. Neumann-Denzau G. and Behrens J. (1984): Inversion of seismic data using tomographical reconstruction techniques for investigations of laterally inhomogeneous media. Geophys. J. R. Abstr. Soc., 79, pp. 305-315.
1366. New B. M. and Bowers K. H. (1994): Ground movement model validation at the Heathrow Express trial tunnel. Proc. Tunnelling 94 Conference, Institution of Mining and Metallurgy, London published by Chapman and Hall, 1994.
1367. New Civil Engineer (1984): Strange inclusions in the ground. Thomas Telford Ltd, London, edition 17 May 1984.
1368. Newbery J. (1971): Engineering geology in the investigation and construction of the Batang Padang hydroelectric scheme, Malaysia. Quarterly Journal of Engineering Geology, Vol. 3, 1971, pp. 151-181.
1369. NGI (1972): Synopsis of unlined tunnels and shafts with water pressure head greater than 100m together with several tunnels and shafts at lower pressures. Norwegian Geotechnical Institute, Internal Report, 1972.
1370. Nicholson G.A., Bieniawski Z.T. (1990): A nonlinear deformation modulus based on rock mass classification. Int J Min Geol Eng 8: pp. 181–202.
1371. Nickson S., Sprott D., Bawden W.F. and Coulson A. (1997): A geomechanical study for a shaft wall rehabilitation program. In Proc. 99th CIM Annual General Meeting, Vancouver, pp. 1–20. Canadian Institute of Mining, Montreal.
1372. Nieto A.S. (1983): Some geologic factors in the location design and construction of large underground chambers in rock. Proc. Rapid Exc. & Tunn. Conf. AIME 1983, pp 569-596.

1373. Nilsen B. (1979): Stability of high rock slopes. (In Norwegian). NTH, Dept. of Geology, Report No. 14, 320 p.
1374. Nilsen B. and Palmström A. (2001): Stability and water leakage of hard rock subsea tunnels. Conf. on Modern Tunneling Science and Technology, Adachi et al. (eds), 2001, Kyoto, Japan, pp. 497-502.
1375. Nilsen B., Shrestha G.L., Panthi K.K., Holmøy K.H. and Olsen V. (2003): RMR vs Q vs RMI, Tunnels & Tunnelling Int. 35:5, pp. 45-48.
1376. Nilsen B. and Palmstrom A. (2013): Methodology for predicting and handling challenging rock mass conditions in hard rock subsea tunnels. Intn. conf. on Strait Crossings, Bergen, Norway, 11p.
1377. Nilssen P. (2004): Bergspenningsmålinger i Garpenberg Norra gruve (in Norwegian). SINTEF bygg og miljø – Berg og geoteknikk. STF22 F04110.
1378. NGI internal report 515170-8 (2001): Empirical relation between Q-value and p-wave velocity of some typical Norwegian rock types, (by Annette Wold Hagen) 46 p.
1379. Nguyen, V. U. and Chowdhury, R.N. (1985): Simulation for risk analysis. Geotechnique 35(1), pp. 47-58.
1380. Nickson, S.D. (1992): Cable support guidelines for underground hard rock mine operations. MSc. thesis, Dept. Mining and Mineral Processing, University of British Columbia.
1381. Nielsen N.M., Hartford D.N.D. and MacDonald (1994): Selection of tolerable risk criteria for dam safety decision making. Proc. 1994 Canadian Dam Safety Conference, Winnipeg, Manitoba. Vancouver: BiTech Publishers, pp. 355-369.
1382. Nilsen B. (1982): Effects of flattening the roof of caverns - a case study. Proc. Int. Symp. on Rock Mech. related to Caverns and pressure shafts, Aachen 1982, Balkema, Vol. 1, pp. 375-381.
1383. Nilsen B. (1985): Shear strength of rock joints at low normal stresses - a key parameter for evaluating rock slope stability. Proc. Int. Symp. on Fundamentals of rock joints. Centek, pp. 487-494.
1384. Nilsen B. (1988): Norwegian sub-sea tunnels, a review with emphasis on water leakages. Proc. Int. ITA Congr. on Tunnels and Water, Madrid, June 1988, pp. 913-918.
1385. Nilsen B. and Thidemann A. (1993): Rock engineering. Hydropower Development, publ. no. 9, Norwegian Institute of Technology, Division of Hydraulic Engineering, 156 p.
1386. Nilsen B. and Ozdemir L. (1993): Hard rock tunnel boring prediction and field performance. Rapid Excavation and tunneling Conference, 20 p.
1387. Nilsen B. (1996): Rock slope stability analyses - What are the key issues? NORAD-course: "Hydropower Development", NTNU, Dept. of Geology and Mineral Res. Eng., 17 p.
1388. Nilsen B., Palmström A. and Stille H. (1999): Quality control of a sub-sea tunnel project in complex ground conditions. Proc. World Tunnel Congress'99. Oslo. A.A. Balkema, 9 p.
1389. Nilsen B. and Palmström A. (2001): Stability and water leakage of hard rock subsea tunnels. Conf. on Modern Tunneling Science and Technology, Adachi et al. (eds), 2001, Kyoto, Japan, pp. 497-502.

1390. Nishida T., Matsumura Y., Miyanaga Y. and Hori M. (1982): Rock mechanical viewpoint on excavation of pressure tunnel by tunnel boring machine. Intn. Symp. on Rock Mechanics, Aachen, May 1982, pp. 815-826.
1391. Noher H.P. (2002): Setzungen Adlertunnel mit Beitrag über Quellhebungen im Chienbergtunnel. Mitteilungen Schw. Gesellschaft für Boden- und Felsmechanik, No. 145, pp. 15–26. Zürich.
1392. Noher H.P., Vögtli B. and Kister B. (2006): Swelling – a geotechnical problem at the Adler Tunnel, Switzerland – monitoring results and their interpretation. Proceedings Eurock 2006, Liège.
1393. Norbury D.R., Child G.H. and Spink T.W. (1986): A critical review of Section 8 (BS 5930) — soil and rock description. In A.B. Hawkins (ed.) Site Investigation Practice: Assessing BS 5930, Eng. Geol. Special Pub. No. 2, Geological Society, pp. 33 1-342.
1394. Nord G., Olsson P. and By T.L. (1992): Probing ahead of TBMs by geophysical means. Tunnelling and Underground Space Technology, Vol. 7, No. 3, pp. 237-242.
1395. Norman J.W. (1968): Photogeology of linear features in areas covered with superficial deposits. Trans. Inst. Mm. Met, 77 B, pp. 60-77.
1396. Norman J.W. (1968): The air photograph requirements of geologists. Photogrammetric Record, 6 (32), pp. 133-149.
1397. Norman J.W. (1969): Photo-interpretation of boulder clay areas as an aid to engineering geological studies. Q.J. Eng. Geol., 2, pp. 149-157.
1398. Norman J.W. (1970): The photogeological detection of unstable ground. J. Inst. Highways Engineers., 17 (2), pp. 19-22.
1399. Norman J.W., Leisowitz T.H. and Fookes P.G. (1975): Factors affecting the detection of slope instability with air photographs in an area near Sevenoaks, Kent. Q. J. Eng. Geol, 8 (3), pp. 159-76.
1400. Norrish, K. and Rausell-Colom, J.A. (1961): Low - Angle X-Ray Diffraction Studies of the Swelling of Montmorillonite and Vermiculite. Clays and Clay Minerals, no. 10 (1961), p. 123.
1401. Norwegian Institute of Technology (1994): Fullface boring of tunnels (in Norwegian). Norwegian Institute of Technology, Div. of Construction Engineering, PR 1-94, 159 p.
1402. Norwegian Institute of Technology (1994): Hard rock tunnel boring. Norwegian Institute of Technology, Div. of Construction Engineering, PR 1-94, 164 p.
1403. Norwegian Institute of Technology (1995): Tunnelling, prognosis for drill and blast. (In Norwegian), Norwegian Institute of Technology, Div. of Construction Engineering, PR 2A-95, 75 p.
1404. Norwegian Standard. (1993): Vibrations and shocks in structures, guidance limits for blasting-induced vibrations (in Norwegian). NS 8141. Norwegian Council for Building Standardisation (NBR), 7 p.
1405. Norwegian State Power System (NSPS) (1973): Closed surge chambers with air pillows. Final Report prepared by the Norwegian Geotechnical Institute and the Norwegian Institute of Technology, November, 1973, 183 p. (in Norwegian).

1406. Nüesch R. (1989): Felsmechanische Resultate aus Untersuchungen im Opalinuston. ETH, Sc.O. Thesis, No. 9349.
1407. Nüesch R., Steiner W. and Madsen F. (1995): Long time swelling of anhydritic rock, mineralogical and microstructural evaluation. Proc. 8th Int. Conf. on Rock Mechanics, Tokyo, Japan, pp. 133–138.
1408. Nussbaum H. (1973): Recent developments of the New Austrian Tunnelling System. Journal of the American Society of Civil Engineers, Volume 99, July 1973, paper 9836, pp. 115 – 132.
1409. Nussberger P. and Judtmann G. (1987): Tunnelling under difficult rock conditions and their management in the case of the Landrucken Tunnel. Proc. 1987 Bochum Conference, pp. 81 - 90.
1410. Nystuen J.P., (1989): Naming geological units in Norway. Norsk Geologisk Tidsskrift, Vol. 69, Suppl.
1411. Obermeier S.E. (1974): Evaluation of laboratory techniques for measurement of swell potential of clays. Bull. Ass. of Engn. Geol., Vol XI, No. 4, pp. 293-314.
1412. Obert L., Windes S.L. and Duvall W.I. (1946): Standardized tests for determining the physical properties of mine rock. U.S. Bureau of Mines Report of Investigations, 3891, 1946.
1413. Obert L and Duval W.I. (1967): Rock Mechanics and the Design of Structures in Rock. New York: Wiley 65 p.
1414. Oda M., Yamabe T., Ishizuka Y., Kumasaka H. and Tada H. (1993): Elastic stress and strain in jointed rock masses by means of crack tensor analysis. Rock Mech. Rock Engn., 1993, 26, pp. 89-112.
1415. Olhoeft G.R. and Johnson G.R. (1989): Densities of rocks and minerals, Section II in Handbook of Physical Properties of Rocks and Minerals, R.S. Carmichael (ed.).
1416. Olivier H.J. (1976): Importance of rock durability in the engineering classification of Karoo rock masses for tunnelling. Proc. symp. on Exploration for Rock Engineering, Johannesburg 1976, pp 137 - 144.
1417. Olofsson I., Stephens M., Follin S., Nilsson A-C., Röshoff K., Lindberg U., Lanaro F., Fredriksson A., and Persson L. (2007): Site descriptive modelling Forsmark, stage 2.2. A fracture domain concept as a basis for the statistical modelling of fractures and minor deformation zones, and interdisciplinary coordination. Report R-07-15. Svensk Kärnbränslehantering AB (SKB), Stockholm, Sweden.
1418. Olsson L. and Stille H. (2002): Observation systems with alarm thresholds and their use in designing underground facilities. SKB R- 02-05 (2002), 47 p.
1419. Olsson M. and Bergqvist I. (1997): Joint formation during detonation in multiple blast holes. Summary report from test period 1993 – 96. (in Swedish) SveBeFo Report 32, 26 p.
1420. Olsson O., Emsley S., Bauer C., Falls S. and Stenberg L. (1996): ZEDEX–A study of the zone of excavation disturbance for blasted and bored tunnels. International Cooperation Report 96-03, Swedish Nuclear Fuel and Waste Management Company, Stockholm, Sweden. 3 Volumes.
1421. Olsson O.L. (2000): Underground storage for nuclear waste in sweden. In Proc. EUROCK 2000 Symposium, Aachen (Ed. D. G. für Geotechnik e.V. (DGQT)), pp. 117– 124. Verlag Glückauf GmbH, Essen.

1422. Olsson R. and Palmström A. 2014. Critical review of EC7 concerning prescriptive measures for rock mechanics design. Eurock 2014 on Structures in and on Rock Masses, in Vigo, Spain, pp. 1493 – 1498.
1423. O'Rouke T. D. (1979): Systems and practices for rapid transit tunnelling, *Underground Space*, Vol. 4, No. 1, 1979, pp. 33-44.
1424. Ortlepp W.D. and Gay N.C. (1984): Performance of an experimental tunnel subjected to stresses ranging from 50 MPa to 230 MPa. Proc. symp. ISRM on Design and Performance of Underground Excavations, Cambridge. pp.337-346. London: British Geotechnical Society
1425. Ortlepp W.D. (1992): Assessment of rockburst risk in the Underground Research Laboratory, Pinawa, Manitoba, Canada. Tech. Rep. 195524, OverviewReport forAtomic Energy of Canada Limited by Steffen, Robertson & Kirsten.
1426. Ortlepp D.W. (1992): The design of the containment of rockburst damage in tunnels – an engineering approach. In Rock support in mining and underground construction, proc. int. symp. on rock support, Sudbury, (eds P.K. Kaiser and D.R. McCreath), pp. 593-609. Rotterdam: Balkema.
1427. Ortlepp W.D. (1992): Note on fault-slip motion inferred from a study of microcatastrophic particles from an underground shear rupture. *Pageoph*, 139(3/4): pp. 167–195.
1428. Ortlepp W.D. (1993): Invited lecture: The design of support for the containment of rockburst damage in tunnels - an engineering approach. Proc. int. symp. on rock support, Sudbury, (eds P.K. Kaiser and D.R. McCreath), pp. 593-609. Rotterdam: Balkema.
1429. Ortlepp W.D. (1993): A philosophical consideration of support requirements in civil and mining tunnels. In TUNCON '93, Proc. symp. Aspects of Control in Tunnelling, Johannesburg, pp. 49-54.
1430. Ortlepp W.D. (1993): High ground displacement velocities associated with rockburst damage. Proceedings of the Third International Symposium on Rockbursts and Seismicity in Mines, Kingston, Ontario.
1431. Ortlepp W.D. (1997): Rock fracture and rockbursts. Monograph Series M9. South African Institute of Min. Metall., Johannesburg.
1432. Ortlepp W.D. (2001): The behavior of tunnels at great depth under large static and dynamic pressures. *Tunnelling and Underground Space Technology*, 16(1), pp. 41– 48.
1433. Ortlepp W.D. and Stacey T.R. (1994). Rockburst mechanisms in tunnels and shafts. *Tunnelling and Underground Space Technology* 9 (1), pp. 59-65.
1434. Oteo C., Suárez H. and de la Fuente P. (2003): The Construction Of Two Tunnels Through Expansive Volcanic Clays. Proc., ISRM 2003 – Technology roadmap for rock mechanics, South African Institute of Mining and Metallurgy.
1435. Otter J.R.H., Cassell A.C. and Hobbs R.E. (1966): Dynamic relaxation. Proc. Instn Civ. Engrs 35, pp. 633-665.
1436. Ouchterlony F. and Olsson M. (2000): Time to complete the table on the blast damage zone. (in Swedish) Proc. Swedish national conf. on rock blasting, Stockholm, pp. 155 – 178.
1437. Owen D.R.J. and Hinton E. (1980): Finite Elements in Plasticity: Theory and Practice, Pineridge Press.

1438. Ozdemir L. and Nilsen B. (1993): Hard Rock Tunnel Boring Prediction and Field Performance. Rapid Excavation and Tunnelling Conference (RETC) Proceedings, 1993, Boston, USA.
1439. Pacher F., Rabcewicz L. and Golsen J. (1974): Zum der seitigen Stand der Gebirgsklassifizierung in Stollen-und Tunnelbau. Proc. XXII Geomech. colloq., Salzburg, pp. 51-58.
1440. Pacher F. (1959): Kennziffern des flachengefuges. Geologies and Bauwesen, 24, pp. 223-227.
1441. Pacher F. (1975): The development of the New Austrian Tunnelling Method and the main features in design work and construction. 16th Symp. on Rock Mechanics, Minneapolis, pp. 223-232.
1442. Pacher F. (1978): The conception of safety in special cases of rock construction. (in German). Proc. Felsmechanik Kolloquium Karlsruhe 1978, Trans Tech Publ. pp. 27-44.
1443. Pacher F. (1980): Applications of the NATM to metro systems. Tunnelling and Geology published by the Department of Geology, Kings College, London. 1980, pp. 5 – 10.
1444. Pacher F. and Vavrovsky G. M. (1987): Preventative supporting measures to control typical collapse situations in tunnelling. Proc. 6th International Society for Rock Mechanics, pp. 1187 - 1190. Balkema publishers.
1445. Pacific Gas and Electric Company (PG & E) (1985): Kerckhoff 2 hydroelectric power project. FERC Project Post Construction Report, October 1985.
1446. Pahl P.J. (1981): Estimating the mean length of discontinuity traces. Int. J. Rock Mech. Mi Sci. and Geomech. Abstr., 18, pp. 221-228.
1447. Paige-Green P. (2008): Lecture MRC08208L - A revised ethylene glycol test for assessing the durability of basic crystalline materials for road aggregate. Proc. 33rd International Geological Congress, Oslo, August 7th.
<http://www.33igc.org/coco/Handlers/COCO/Search.aspx?PageID=5002&time=1&date=1#>
1448. Palmström A. (1974): Characterization of the degree of jointing and the quality of rock masses (in Norwegian). Internal report Ing. A.B. Berdal, Høvik, Norway, 26 p.
1449. Palmström A. (1979): The use of engineering geology at Rygene Power Plant. (in Norwegian). Annual Conf. on Rock Mechanics, Oslo, 1979, pp. 23.1 – 23.14.
1450. Palmström A. (1982): The volumetric joint count - a useful and simple measure of the degree of jointing. Proc. IV Int. Congr. IAEG, New Delhi, 1982, pp. V.221-V.228.
1451. Palmström A. (1982): Problems during construction of the Vardö Tunnel - a 2.6 km long submarine road tunnel. IAEG Congress, New Delhi, 1982, IV. 231 – IV.244.
1452. Palmström A. (1983): Stability evaluations before and experience after 25 meter of inundation of 300 m high scree in the Tunsbergdalen reservoir. (in Norwegian). Annual Conf. on Rock Mechanics, Oslo 1983, pp. 27.1 – 27.15.
1453. Palmström A. (1984): Geo-investigation and advanced tunnel excavation technique important for the Vardö subsea road tunnel. Proc. Int. Symp. Low Cost Road Tunnels, Oslo, Norway, 1985, 16 p.

1454. Palmström A. and Kollström J.I. (1984): The use of geo-engineering know-how gave large savings for the one-lane Lyse road tunnel. Int. symp. on Low Cost Road Tunnels, Oslo 1984, pp. 205-213.
1455. Palmström A. (1985): Application of the volumetric joint count as a measure of rock mass jointing. Proc. Int. Symp. Fundamentals of Rock Joints, Björkliden, Sweden, 1985, pp 103-110.
1456. Palmström A. and Lien R. (1985): Handbook in rock engineering Tapir Publishing company, 1985, 140 p.
1457. Palmström A. (1986): The volumetric joint count as a measure of rock mass jointing. Presented at the Conference on Fracture, Fragmentation and Flow, Jerusalem 1986, 19 p.
1458. Palmström A. (1986): Sub-sea rock tunnels. Invited paper at the Int. conf. on Strait Crossings, Stavanger, Norway, 1986, pp. 111 – 139.
1459. Palmström A. (1986): A general, practical method for identification of rock masses to be applied in evaluation of rock mass stability conditions and TBM boring progress. (in Norwegian). Proc. Conf. on Fjellsprengningsteknikk, Bergmekanikk, Geoteknikk, Oslo Norway, pp. 31.1-31.31.
1460. Palmström A. (1987): Norwegian design and construction experience of unlined pressure shafts and tunnels. Intn. Conf. on Hydropower, Oslo, Norway, 1987. 10 p.
1461. Palmström A. and Schanche K. (1987): Design features at Tjodan save time and money. Int. Water Power and Dam Construction, June, 1987, 6 p.
1462. Palmström A. and Berthelsen O. (1988): The significance of weakness zones in rock tunnelling. Proc. Int. Conf. Rock Mechanics and Power Plants, Madrid 1988, 8 p.
1463. Palmström A. (1988): Subsea tunnels. In Norwegian Tunnelling Today, 1988. Tapir Publishers, Trondheim, Norway, pp. 93 – 96.
1464. Palmström A. (1988): Unlined high pressure tunnels and shafts. In Norwegian Tunnelling Today, 1988. Tapir Publishers, Trondheim, Norway, pp. 73 – 75.
1465. Palmström A. (1988): Norwegian experience with subsea tunnels. Int. conf. on Tunnels and Water. Madrid, 1988. A.A. Balkema publishers, Rotterdam. 8 p.
1466. Palmström A. (1988): Preinvestigations for tunnel excavation (in Norwegian). National conference Bergmekanikkdagen, Oslo, 1988, pp. 28.1 – 28.12.
1467. Palmström A. (1992): Introduction to Norwegian subsea tunnelling. Publ. No. 8, issued by the Norwegian Soil and Rock Engineering Association, 1992, pp. 8 – 12.
1468. Palmström A. and Naas R. (1993): Norwegian subsea tunnelling - rock excavation and support techniques. Int. Symp. on Technology of bored tunnels under deep waterways, Copenhagen, 1993, pp. 201 – 225.
1469. Palmström A. (1993): The new Austrian tunnelling method. Conf. on Fjellsprengningsteknikk, Bergmekanikk, Geoteknikk, Oslo, 1993, pp. 31.1 – 31.20.
1470. Palmström A. (1994): The challenge of subsea tunnelling. Tunnelling and Underground Space Technology, Vol. 9, No. 2, 1994, pp. 145 – 150.
1471. Palmström A. (1995): RMi - a rock mass characterization system for rock engineering purposes. Ph.D. thesis Univ. of Oslo, 400 p. <http://www.rockmass.net>

1472. Palmström A. (1995): RMi - a system for characterizing rock mass strength for use in rock engineering. *Journal of Rock Mechanics and Tunnelling Technology*, Vol. 1, Number 2, 69 – 108.
1473. Palmström A. (1995): Characterizing rock burst and squeezing by the rock mass index. *Int. Conf. on Design and Construction of Underground Structures*, New Delhi, 1995. 10 p.
1474. Palmström A. (1995): Case histories in design and construction of underground structures. *Int. Conf. on Design and Construction of Underground Structures*, New Delhi, 1995. 10 p.
1475. Palmström A. (1995): The weighted joint density method leads to improved characterization of jointing. *Int. Conf. on Recent Advances in Tunnelling Technology*, New Delhi, India 1996, pp. 9 – 14.
1476. Palmström A. and Naas R. (1995): Under the sea in Norway. *World Tunnelling*, November 1995, pp. 353 – 360.
1477. Palmström A. (1996): Application of seismic refraction survey in assessment of jointing. *Int. Conf. on Recent Advances in Tunnelling Technology*, New Delhi, India, 1996, pp. 15 – 22.
1478. Palmström A. (1996): Characterization of rock masses by the RMi for use in practical rock engineering. *Tunnelling and Underground Space Technology*, Vol. 11, No. 2, pp. 175 - 186 (part 1), and Vol. 11, No 3, pp. 287 - 303 (part 2).
1479. Palmström A. (1996): RMi - a new practical characterization system for use in rock engineering. *Conference Svenska Bergmekanikdagen*, 1996, Stockholm, pp. 39 – 63.
1480. Palmström A. (1996): Engineering geology and rock engineering applied in Norwegian tunnels. *Proc. Int. Conf. on Tunnels for the Third Millennium*, Prievidza, Slovakia, 1996, pp. 59 – 74.
1481. Palmström A. (1996): A new method to characterize rock masses for applications in rock engineering. *National annual tunnelling conference Bergmekanikkdagen*, Oslo, 1996, pp. 38.1 – 38.27.
1482. Palmström A. (1997): Collection and use of geological data in rock engineering. *ISRM News*, pp. 21- 25.
1483. Palmström A. and Skogheim A. (1999): New Milestones in subsea blasting at water depth of 55 m. *Tunnelling and Underground Space Technology*, Vol. 15, No. 1, 1999, pp. 65 – 69.
1484. Palmström A. (2000): Recent developments in rock support estimates by the RMi. *Journal of Rock Mechanics and Tunnelling Technology*, Vol. 6, No. 1 May 2000, pp. 1 – 19.
1485. Palmström A. and Nilsen B. (2000): Engineering geology and rock engineering. *Handbook*. Norwegian Rock and Soil Engineering Association, 250 p.
1486. Palmström A., Stille H. and Nilsen B. (2000): The Fröya tunnel – a sub-sea road tunnel in complex ground conditions. *Svenska Bergmekanikdagen*, 2000, pp. 19 – 30.
1487. Palmström A. (2000): Recent developments in rock support estimates by the RMi. *Journal of Rock Mechanics and Tunnelling Technology*, Vol. 6, No. 1, May 2000, pp. 1 – 19.
1488. Palmström A. and Singh R. (2001): The deformation modulus of rock masses - comparisons between in situ tests and indirect estimates. *Tunnelling and Underground Space Technology*, Vol. 16, No. 3, pp. 115 - 131.

1489. Palmström A., Milne D. and Peck W. (2001): The reliability of rock mass classification used in underground excavation and support design. ISRM News, Vol. 6, No. 3, 2001, pp. 40 – 40.
1490. Palmström A. (2001): Measurement and characterization of rock mass jointing. In In-situ characterization of rocks. Sharma V.M. and Saxena K.R. eds., A.A. Balkema publishers, 2001, pp. 49 - 97.
1491. Palmström A., Blindheim O.T. and Broch E. (2002): The Q system – possibilities and limitations. (in Norwegian) Norwegian annual tunnelling conference Fjellsprengningsteknikk / Bergmekanikk / Geoteknikk, Oslo 2002, pp. 41.1 – 41.38.
1492. Palmström A. (2003): Experience from construction of the Vardö, Nordkapp, Oslofjorden and Bömlafjorden tunnels (in Norwegian). Conf. on Investigations for constructions in rock. Kursdagene NTNU, Trondheim, 2003, 18 p.
1493. Palmström A. (2003): Slides in Norwegian water tunnels – a maintenance problem? (in Norwegian) Conference on Vassdragteknisk forum, arranged by Norwegian Electricity Industry Association, Oslo 2003, 6 p.
1494. Palmström A. (2003): Appropriate amount of ground investigations. (in Norwegian). Norwegian annual tunnelling conference Fjellsprengningsteknikk / Bergmekanikk / Geoteknikk, Oslo 2003, pp. 5.1-5.17.
1495. Palmström A. (2003): Appropriate amount of ground investigations (in Norwegian). Conf. on Investigations for constructions in rock. Kursdagene NTNU, Trondheim, 2003, 22 p.
1496. Palmström A. (2005): Measurements of and correlations between block size and rock quality designation (RQD). Published in Tunnels and Underground Space Technology, Vol. 20, 2005, pp. 362-377.
1497. Palmstrom A. and Broch E. (2006): Use and misuse of rock mass classification systems with particular reference to the Q-system. Tunnels and Underground Space Technology, Vol. 21, pp. 575-593.
1498. Palmstrom A. and Gausereide L-R. (2006): What is required and what should be included in the geological description in a tender document? (in Norwegian) Norwegian annual tunnelling conference Fjellsprengningsteknikk / Bergmekanikk / Geoteknikk, Oslo, 2006, pp. 17.1-17.9.
1499. Palmström A. and Stille H. (2007): Ground behaviour and rock engineering tools for underground excavations. Tunnelling and Underground Space Technology, Vol. 22 (2007), pp. 363–376.
1500. Palmstrom, A. (2009): Technical note. Combining the RMR, Q, and RMi classification systems. Tunnelling and Underground Space Technology Vol. 24, 2009, pp. 491 – 492.
1501. Palmstrom A. and Stille H. (2010): Rock Engineering. Book published by Thomas Telford, London, 408 p.
1502. Palmström A. (2014): Norwegian tunnel builders are the world's best – a myth? (In Norwegian) Annual Conf. on Fjellsprengningsteknikk / Bergmekanikk / Geoteknikk, Oslo, pp.5.1 – 5.19.
1503. Papadopoulos Z. and Marinos P. (1992): On the anisotropy of the Athenian schist and its relation to weathering. Bull. Int. Ass. Engn. Geol., No. 45, pp. 111 - 116.
1504. Parmakian J. (1957): Water-hammer design criteria. A.S.C.E. Power Journal, Proc. Paper 1216, 8 p. Discussion, August 1957, October 1957, February 1958.

1505. Parmakian J. (1982): Minimum thickness for handling steel pipes. Water Power and Dam Construction, June 1982, pp. 18-19.
1506. Patching T.H. and Coates D.F. (1968): A recommended rock classification for rock mechanics purposes. CIM Bull., Oct. 1968, pp 1195-1197.
1507. Paterson S.J. (1975): Engineering geology of the Fisher hydro-electric scheme, Tasmania. Australian Geomechanics Journal 1975, pp. 32-38.
1508. Paterson S.J., Hale G.E.A. and Ikin D.B. (1975): Stabilizing a landslide above Fisher penstock, Tasmania. Proc. 2nd Australia-New Zealand Conference on Geomechanics, Brisbane, 1975, pp. 314-318.
1509. Paton J. (1956): The Glen Shira hydroelectric project. Proc. Instn. Civil Eng., September 1956, Paper No. 6152, pp. 593-632.
1510. Patterson F.W., Clinch R.L. and McCaig I.W. (1957): Design of large pressure conduits in rock. ASCE Power Journal, Paper No. 1457, December 1957, 30 p.
1511. Patton F.D. (1966): Multiple modes of shear failure in rock and related materials. Ph. D. Thesis, Univ. of Illinois, pp. 282.
1512. Patton F.D. (1966): Multiple modes of shear failure in rock. Proc. 1st Congr. ISRM, Lisbon, 1966, I: pp. 509-513.
1513. Patton F.D. and Deere D.U. (1970): Significant geologic factors in slope stability. Proc. Symp. Planning Open Pit Mines, Johannesburg, pp. 143-151.
1514. Paul A. (1995): Sohlhebungen beim Tunnelbau im Gipskeuper, Mechanismen – Auswirkungen – Bemessungsphilosophien. Lehrgang Felsmechanik und Ingenieurgeologie in Sargans, 1995. Techn. Akademie Esslingen, Niederlassung Sarnen.
1515. Paul A. and Wichter L. (1995): Das Langzeitverhalten von Tunnelbauten im quellenden Gebirge – Neuere Messergebnis vom StuttgarterWagenburgtunnel. Taschenbuch Tunnelbau 1996, pp. 125–164. Essen: Verlag Glückauf.
1516. Pearce G.E. (1988): Report on the Proc. 5th Int. Tunnelling Symp., Tunnelling 88, Trans. Instn Min. Metall. (Sect. A: Min. industry) 97, pp. A149-159.
1517. Pearson R. and Money M.S. (1977): Improvements in the Lugeon or Packer permeability test. Q. J. Eng. Geol., 10, pp. 222-239.
1518. Pearson J.R.A. (1988): Key questions in rock mechanics. Proc. 29th U.S. Rock Mechs. Symp., Minneapolis, pp. 7-15.
1519. Peck, R.B. (1943): Earth pressure measurements in open cuts, Chicago subway. Trans. ASCE, 108, pp. 1008-1036.
1520. Peck R.B. (1969): Advantages and limitations of the observational method in applied soil mechanics: 9th Rankine lecture. Géotechnique, 19 (2), pp. 171-187.
1521. Peck R. B. (1969b): Deep excavations and tunnelling in soft ground. Proc. 7th Int. Conf. Soil Mechanics & Foundation Engng, State of the Art, Mexico, pp. 225 – 258.

1522. Peck R. B. (1980): Where has all the judgement gone? Laurits Bjerrum memorial lesson no 5, Norwegian Geotechnical Institute, Oslo, Norway
1523. Peck W. (2000): Determining the Stress Reduction Factor in Highly Stressed Jointed Rock. Australian Geomechanics, June 2000. pp. 57 – 60.
1524. Peck R.B., Hanson W.E, and Thorburn T.H. (1974): Foundation Engineering. John Wiley, New York.
1525. Pelli F., Kaiser, P.K. and Morgenstern, N.R. (1991): An interpretation of ground movements recorded during construction of the Donkin-Morien tunnel. *Can. Geotech. J.* 28(2), pp. 239-254.
1526. Pelizza S. et al. (1994): Improvement of stability conditions from half to full face excavation in difficult geotechnical conditions. 1994 ITA Conference (Cairo), Tunnelling and Ground Conditions, pp. 267 - 271, Balkema publishers.
1527. Pelizza S. and Grasso P. (1999): Increasing confidence in the expected safety factor using information from tunnel collapses and closures. In Proc. Int. Symp. on Ground Challenges and Expectations in Tunnelling Projects, Cairo.
1528. Pelizza S., Oggeri C., Peila D. and Brino L. (2000): Key points for static approval test of underground works. In: Proc. World Tunnel Congress, ITA, Durban, 13 - 18 May, pp. 395–398, SAIMM.
1529. Penny C., Stewart J., Jobling P. W. and John M. (1991): Castle Hill NATM tunnels (Channel Tunnel); design and construction. *Tunnelling 91*, Institution of Mining and Metallurgy, London. Published by Elsevier Applied Science 1991, pp. 285 – 297.
1530. Perrin R.M.S. (1963): The use of air photographs in the study of patterned ground in East Anglia. *Photogrammetria*, 14, pp. 183-188.
1531. Peters C.M.F. (1972): A structural interpretation of the Garlock fault at the Tehachapi crossing. *Proc. Rapid Excav. & Tunn. Conf.*, AIME, pp. 133-155.
1532. Peterson J.E., Paulsson B.N.P. and McEvilly T.V. (1985): Applications of ART to crosshole seismic data. *Geophysics*, 50 (10), pp. 1566-1580.
1533. Pietruszczak S. and Stolle D.F.E. (1987): Deformation of strain softening materials Part II: Modelling of strain softening response. *Computers and Geotechnics* 4, pp. 109-123
1534. Pettitt W. (2001): Analysis of the in-situ principal stress field at the HRL using acoustic emission data. International Progress Report SKB-IPR-01-09, Swedish Nuclear Fuel and Waste Management Company, Stockholm, Sweden.
1535. Phillips F.C. (1971): The Use of Stereographic Projection in Structural Geology. Edward Arnold, London.
1536. Pierson L.A., Davis S.A. and Van Vickle R. (1990): Rockfall Hazard Rating System Implementation Manual. Federal Highway Administration (FHWA) Report FHWAOR —EG-90-01. FHWA, U.S. Department of Transportation.
1537. Pinches G.M. and Thompson R.P. (1990): Crosshole and downhole seismic surveys in the UK Trias and Lias. In F.G. Bell, M.G. Culshaw, J.C. Cripps and J.R. Coffey (eds) *Field Testing in Engineering Geology*, Eng. Geol. Special Pub. No. 6, Geological Society, pp. 299-308.

1538. Pine R.J. (1992): Risk analysis design applications in mining geomechanics. *Trans. Inst. Min. Metall.* (Sect.A) 101, pp. 149-158.
1539. Pinkerton I.L., Fekete B.E. and Alexander L.G. (1964): Design and behavior of Tumut I and Tumut II pressure shafts. *Transactions of the Australian Society of Civil Engineers*, September, 1964, Paper No. 1780, pp. 81-102.
1540. Piteau D.R. (1970): Geological factors significant to the stability of slopes cut in rock. *Proc. Symp. on Planning Open Pit Mines*, Johannesburg, South Africa, 1970, pp. 33-53.
1541. Piteau D.R. (1973): Characterizing and extrapolating rock joint properties in engineering practice. *Rock Mechanics*, Suppl. 2, pp. 5-31.
1542. Plesha M.E. (1987): Constitutive models for rock discontinuities with dilatancy and surface degradation. *Int. J. Numer. Anal. Methods Geomech.* 1987; 11 (4): pp. 345-62.
1543. Poehlmann W. and Mang F. (1974): The conduit system for the Waldeck II pumped storage station. *Water Power*, November, 1974, pp. 354-358, December, 1974, pp. 412- 416.
1544. Poisel R. (1990): The dualism-continuum of jointed rock. *Proc. Mech. of Jointed and Faulted Rock*, 1990, Balkema publ. pp. 41-50.
1545. Pollard D.D. and Aydin A. (1988): Progress in understanding jointing over the past century. *Bull. Geol. Society of America*, Vol 100, pp. 1181 - 1204.
1546. Poropat G.V. (2008): Remote characterization of surface roughness of rock discontinuities. In Y. Potvin, J. Carter, A. Dyskin, &R. Jeffery (eds.), *Proceedings 1st Southern Hemisphere International Rock Mechanics Symposium*, Perth, Australia, 16-19 September 2008, pp. 447-458.
1547. Poropat G.V. (2009): Measurement of surface roughness of rock discontinuities. *RockEng09: Proceedings of the 3rd CANUS Rock Mechanics Symposium*, Toronto, Ed. M. Diederichs and G. Grasselli.
1548. Pototschink M. (1992): Settlement reduction by soil fracture grouting. *Proc. 1992 Specialist Conference on Grouting and Soil Improvement* (New Orleans). Published by the American Society of Civil Engineers, pp. 398 – 409.
1549. Pottler R. (1993): To the limits of shotcrete linings. *Proc. 6th Engineering Foundation Conf. on shotcrete for underground support*, (Niagara, May 1993), pp. 83 – 90.
1550. Pottler R. (1990): Time dependent shotcrete interaction; a numerical shortcut. *Computers and Geotechnics* 9, 1990. Published by A. A. Balkema, pp. 149 – 169.
1551. Potvin Y. (1988): Empirical open stope design in Canada. Ph.D. thesis, Dept. Mining and Mineral Processing, University of British Columbia.
1552. Potvin Y., Hudyma M.R. and Miller H.D.S. (1989): Design guidelines for open stope support. *Bull. Can. Min. Metall.* 82(926), pp. 53-62.
1553. Potvin Y. and Milne D. (1992): Empirical cable bolt support design. In *Rock Support in mining and underground construction*, proc. int. symp. on rock support, Sudbury, (eds P.K. Kaiser and D.R. McCreath), pp. 269-275. Rotterdam: Balkema.
1554. Potyondy D.O., Cundall P.A. and Lee C.A. (1996): Modelling rock using bonded assemblies of circular particles. In *Proc. 2nd North American Rock Mechanics Symposium*, Montreal (Ed. M. Aubertin, F. Hassani and H. Mitri), vol. 2, pp. 1937–1944. A.A. Balkema, Rotterdam.

1555. Potyondy D.O. and Cundall P.A. (1998): Modeling notch-formation mechanisms in the URL Mine-by Test Tunnel using bonded assemblies of circular particles. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, 35(4-5): pp. 510–511. Paper: 067.
1556. Potyondy D.O. and Cundall P.A. (2000): Bonded-particle simulations of the in-situ failure test at Olkiluoto. Working Report 2000-29, Posiva Oy, Helsinki, Finland. 76p.
1557. Power W.L., Tullis T.E., Brown S.R., Boitnott G.N. and Scholz C.H. (1987): Roughness of Natural Fault Surfaces. *Geoph. Res. Lett.*, (14)1, pp. 29-32.
1558. Powerham A. J. (1994): An overview of the observational method; development in cut and cover and bored tunnelling projects. *Geotechnique*, December 1994, Volume 44, No. 4, pp. 619 – 636.
1559. Prasad N. (1970): Sedimentology of Keuper from the Belchentunnel Eastern Swiss Juras. Doctoral Thesis, University Basel.
1560. Pratt H.R., Black A.D., Brown W.S. and Brace W.R. (1972): The effect of specimen size on the mechanical properties of unjointed diorite. *Int. J. Rock Mech. Min. Sci.*, Vol. 9, 1972, pp. 513-529.
1561. Prein R. (1994): Driving the Galgenberg Tunnel in tricky geology. *Tunnel 2/94*, pp. 14 – 17.
1562. Price N.J. (1960): The strength of coal measure rocks in triaxial compression. UK Nat. Coal Board MRE Report, No.2159, 1960.
1563. Price N.J. (1969): Laws of rock behavior in the earth's crust. 11th Symp. on Rock Mech. Berkley, pp. 3-23.
1564. Price N.J. (1981): Fault and joint development in brittle and semi-brittle rock. Pergamon Press, 1981, 176 p.
1565. Priest S.D. and Hudson J.A. (1976): Discontinuity spacings in rock. *Int. J. Rock Mech. Min. Sci. and Geomech. Abstr.*, 13, pp. 135-148.
1566. Priest S.D. (1980): The use of inclined hemisphere projection methods for the determination of kinematic feasibility, slide direction and volume of rock blocks. *Int. J. Rock Mech. Mi Sci. and Geomech. Abstr.*, 17, pp. 123.
1567. Priest S.D. and Hudson J.A. (1981): Estimation of discontinuity spacing and trace length using scanline surveys. *Int. J. Rock Mech. Mi Sci. and Geomech. Abstr.*, 18, pp. 183-197.
1568. Priest S.D. and Brown E.T. (1983): Probabilistic stability analysis of variable rock slopes. *Trans. Inst. Min. Metall. (Sect. A)* 92: pp. 1-12.
1569. Priest S.D. (1985): Hemispherical Projection Methods in Rock Mechanics. George Allen and Unwin, London.
1570. Priest S.D. (1993): Discontinuity Analysis for Rock Engineering. Chapman and Hall, London, 473 p. ISBN 0 412 47600 2.
1571. Pritchard C.J. and Hedley D.G.F. (1993): Progressive pillar failure and rockbursting at Denison Mine. In Proc. 3rd Int. Symp. on Rockbursts and Seismicity in Mines, Kingston (Ed. R. P. Young), pp. 111–116. A.A. Balkema, Rotterdam.

1572. Proctor R.J. (1971): Mapping geological conditions in tunnels. Bull. Ass. Engn. Geol., Vol. VIII, No. 1, pp. 1-31.
1573. Protodiakonov M.M. and Koifman, M.I. (1963): The scale effect in investigations of rock and coal. Proc. 5th Congress Intnl. Bureau Rock Mech., Leipzig, 1963.
1574. Pusch R. and Morfeldt C.-O. (1993): Characterization of rock masses for construction of underground openings from numeric calculation of stresses, deformations and ground water flow. (in Swedish). Väg och vattenbyggaren, no. 4/93, pp. 13 - 18.
1575. Qiaxiong L. (2006): Strength Degradation and Damage Micromechanism of Granite under Long-Term Loading. PhD. thesis, The University of Hong Kong
1576. Quigley, R.M. and Vogan R.W. (1970): Black shale heaving at Ottawa, Canada, Can. Geotech. J., 7, pp. 106-115.
1577. Rabcewicz L.v. (1964/65): The new Austrian tunnelling method. Water Power, part 1 November 1964 pp. 511-515, Part 2 January 1965 pp. 19-24.
1578. Rabcewicz L. (1969): Stability of tunnels under rock load. Water Power 21(6-8), pp. 225-229, pp. 266-273, pp. 297-304.
1579. Rabcewicz L.v. (1975): Tunnel under Alps uses new, cost-saving lining method. Civil Engineering-ASCE, October 1975, pp. 66-68.
1580. Rabcewicz L.v. and Golser J. (1973): Principles dimensioning the support system for the new Austrian tunnelling method. Water Power, March 1973, pp. 88-93.
1581. Rahman Z., Slob S. and Hack R. (2006): Deriving roughness characteristics of rock mass discontinuities from terrestrial laser scan data. IAEG2006 Paper number 437.
1582. Ramamurthy T., Venkatappa Rao G. and Singh J. (1993): Engineering behaviour of phyllites. Engineering Geology, 33, pp. 209 - 225.
1583. Ramamurthy T. and Arora, V.K. (1993): A classification for intact and jointed rocks, Geotechnical Engineering of Hard Soils-Soft Rocks. Balkema, Rotterdam, pp. 235–242.
1584. Ramamurthy T. (1994): Strength and modulus responses of anisotropic rocks. In: Hudson J.A. editor. Comprehensive rock engineering. 1994, Vol. 1, no.13, pp. 313-329.
1585. Ramamurthy T. (2001): Shear strength response of some geological materials in triaxial compression. Int. J. Rock Mech. Min. 38, pp. 683–697.
1586. Ramez, M.R.H. (1967): Fractures and the strength of a sandstone under triaxial compression. Intnl. J. Rock Mech. Mín. Sci., Vol. 4, 1967, pages 257-268.
1587. Ramos N.G. and Abrams E.A. (1968): Design of tunnel liners for internal and external pressure. State of California, Department of Water Resources, Technical Memorandum 33, January 1968.
1588. Rasmussen J. (1983): Skills, rules, knowledge: signs and symbols and other distinctions in human performance models. IEEE Transactions: Systems, Man and Cybernetics. 1983.
1589. Rathe L. (1975): An innovation in surge chamber design. Water Power and Dam Construction, June/July, 1975, pp. 244-248.

1590. Rauh F, Thuro K. and Spaun G. (2006): The Powder Swelling Test – Advantages and Limitations *IAEG Journal Paper # 472*.
1591. Rawlings C.G., Lance G.A. and Anderson J.M. (1998): Preconstruction assessment strategy of significant engineering risks in tunnelling. *Underground Construction in Modern Infrastructure*, Stockholm.
1592. Ray R.G. (1960): Aerial Photographs in Geologic Interpretation and Mapping. US Geological Survey Professional Paper 373, Washington, DC.
1593. Ray R.G. and Fischer WA. (1960): Quantitative photogeology — a geologic research tool. *Photogrammetric Engineering*, 26, pp. 146-147.
1594. Raybould D.R. and Price D.G. (1966): The use of the proton magnetometer in engineering geological investigations. Proc. 1st Congr. Int. Soc. Rock Mech., Lisbon, Volume 1, pp. 11-14.
1595. Read J.R.L. and Lye G.N. (1983): Pit slope design methods, Bougainville Copper Limited open cut. Proc. 5th Congr. ISRM., Melbourne pp. pp. C93-C98. Rotterdam: Balkema.
1596. Read R.S. (1996): Characterizing excavation damage in highly stressed granite at AECL's Underground Research Laboratory. In Proc. Int. Conf. on Deep Geological Disposal of Radioactive Waste, Winnipeg (Ed. J. B. Martino and C. D. Martin), pp. 35–46. Canadian Nuclear Society, Toronto.
1597. Read R.S. and Martin C.D. (1996): Technical summary of AECL's Mine-by Experiment Phase 1: Excavation response. AECL Report AECL-11311, Atomic Energy of Canada Limited.
1598. Read R.S. and Chandler N.A. (1997): Minimizing excavation damage through tunnel design in adverse stress conditions. In Proceedings of the International Tunnelling Association World Tunnel Congress, Vienna, vol. 1, pp. 23–28. A.A. Balkema, Rotterdam.
1599. Read S.A.L., Richards L.R., Perrin N.D. (1999): Applicability of the Hoek–Brown failure criterion to New Zealand greywacke rocks. In: Proc. 9th Int. Cong. on Rock Mech. Paris, France, 2, pp. 655–660.
1600. Reason J. (1990): Human error. Cambridge University Press. 1990.
1601. Redford P.R. (1981): Site investigation practices for hard rock tunnel design. MSc dissertation, University of Surrey.
1602. Reeves M.J. (1985): Rock surface roughness and frictional strength. *Int. J. Rock. Mech. Min. Sci. & Geomech. Abstr.*, 22, pp. 429-442.
1603. Renard F.O., Voisin C., Marsan D. and Schmittbuhl J. (2006): High resolution 3D laser scanner measurements of a strike-slip fault quantify its morphological anisotropy at all scales. *Geoph. Res. Lett.*, (33).
1604. Rhén I., Gustafson G., Stanfors R. and Wikberg P. (1997): ÄSPÖ HRL – Geoscientific evaluation 1997/5: Models based on site characterization 1986-1995. SKB Technical Report TR97-06, Swedish Nuclear Fuel and Waste Management Company, Stockholm, Sweden.
1605. Richardson, D.N. and Long, J.D. (1987): The sieve slake durability test. *Bull. Ass. Eng. Geol.*, Vol. 24, No.2, pp. 247-258.
1606. Riedmüller G., (1997): Rock characterization for tunnelling - Engineering geologist's point of view. *Felsbau* 15 (3), pp. 167- 170.

1607. Riedmüller G., Schubert W., (1999): Critical comments on quantitative rock mass classifications. *Felsbau* 17(3): pp. 164-167.
1608. Riedmüller G., Schubert W. (1999): Rock mass modelling in tunnelling versus rock mass classification using rating methods. In B. Amadei, R. L. Kranz, G. A. Scott, P. H. Smeallie (eds.), *Rock Mechanics for Industry; Proc. intern. symp.*, Vail: pp. 601-605. Rotterdam: Balkema.
1609. Riedmuller G. and Schubert W. (1999): Rock mass modeling in tunneling versus rock mass classification using rating methods. 37th U.S. Symposium on Rock Mechanics (USRMS), June 7 - 9, 1999, Vail, CO
1610. Riemer W., Pantzartzis P., Krapp L. and Scourtis C. (1996): Investigation and monitoring of landslides at the Polyphyton project in Greece. *Proc. Intnl. Symposium on Landslides*, Trondheim, Norway.
1611. Ritchie A.M., (1963): The evaluation of rockfall and its control. *Highway Record*. Vol 17.
1612. Ritter W. (1879): *Die Statik der Tunnelgewölbe*. Berlin: Springer.
1613. Robbins R.J. (1976): Mechanized tunnelling - progress and expectations: 12th Sir Julius Werhner Memorial Lecture. In *Tunnelling '76* (ed. M.J. Jones), pp. xi-xx. London: Institution Mining and Metallurgy.
1614. Robbins R.J. (1980): Present trends and future directions in tunnelling. *The Yugoslav Symp. on Rock Mechanics and Underground Actions*, 11 p.
1615. Roberts C.M. (1953): Special features of the Affric hydro-electric scheme (Scotland). *Proc. of the Institution of Civil Engineers*, Paper No. 5926, Part 1, September 1953, pp. 520-555.
1616. Robertson A. MacG. (1970): The interpretation of geological factors for use in slope theory. *Proc. Symp. Planning Open Pit Mines*, Johannesburg, A.A. Balkema, Amsterdam, pp. 57—77.
1617. Robinson C.S. (1972): Prediction of geology for tunnel design and construction. *Rapid Tunneling and Excavation Conf.*, pp 105-114.
1618. Rocscience Inc. (2007): RocLab Version 1.031 – Rock mass strength analysis using the Hoek-Brown failure criterion. (www.rocscience.com), Toronto, Ontario, Canada.
1619. Rocscience Inc. (2008): Phase2 Version 7.001 - Finite Element Analysis for Excavations and Slopes. (www.rocscience.com), Toronto, Ontario, Canada.
1620. Rocscience (2011a): DIPS: Graphical and Statistical Analysis of Orientation Data.
1621. Rocscience (2011b): PHASE2: Finite Element Analysis for Excavations and Slopes.
1622. Rokoengen K. (1973): Classification of clay zones in rock. (in Norwegian). Report no. 11, The Technical University in Norway, Trondheim, 46 p. (Extract from dr. thesis on 'Swelling properties of clay zones in rock')
1623. Romana M. (1985): New adjustment rating for application of the Bieniawski classification to slopes. *Proc. Int. Symp. Rock Mechanics Mining Civ. Works. ISRM*, Zacatecas, Mexico, pp. 59-63.

1624. Rose D. (1985): Steel fibre reinforced shotcrete for tunnel linings: the state of the art. Proc. North American rapid excav. tunneling conf. 1, pp. 392-412. New York: Soc. Min. Engrs, Am. Inst. Min. Metall. Petrolm Engrs.
1625. Rosenbleuth E. (1981): Two-point estimates in probabilities. J. Appl. Math. Modelling 5, October, pp. 329-335.
1626. Rosengren K.J. and Jaeger J.C. (1968): The mechanical properties of a low porosity interlocked aggregate. Geotechnique, Vol. 18, 1968, pp. 317-326.
1627. Roseveare J.C.A. (1964): Ffestiniog pumped-storage scheme. Proc. Instn. Civil Engrs., Vol. 28, May 1964, pp. 1-30.
1628. Rostami J. (1992): Design optimization, performance prediction and economic analysis of tunnel boring machines for the construction of the proposed Yucca Mountain nuclear waste repository. Dr. thesis, Colorado School of mines, 195 p.
1629. Rouhiainen P. (2000): Difference flow measurements in borehole KLX02 at Laxemar. Äspö Hard Rock Laboratory. SKB IPR 01-06, Svensk Kärnbränslehantering AB.
1630. Rouse G.C. (1968): Structural behavior measurements of tunnel liners, Spring Creek power conduit. U.S. Dept. of Interior, Bureau of Reclamation, Dams Branch Report No. DD-6, January 1968, 44 p.
1631. Roy N. (1993): Engineering behavior of rock masses through study of jointed models. Ph.D. thesis, Indian Institute of Technology. Delhi. India, 1993.
1632. Ruiz M.D. (1966): Some technological characteristics of twenty-six Brazilian rock types. Proc. 1st Congr. Intn. Rock Mech., Lisbon, Vol. 1, pp. 115 - 119.
1633. Rummel, F. and Van Heerden, W.L. (1978): Suggested methods for determining sound velocity, Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 15, No.2, pp. 53-58.
1634. Russenes B.F. (1974): Analysis of rock spalling for tunnels in steep valley sides (in Norwegian). M.Sc. thesis, Norwegian Institute of Technology, Dept. of Geology, 247 p.
1635. Russo G., Kalamaras G.S. and Grasso P. (1998): A discussion on the concepts of geomechanical classes, behaviour categories, and technical classes for an underground project. Gallerie e grandi opere sotterraneo, No. 54, March 1998, pp. 40 - 51.
1636. Russo G. (2007): Improving the reliability of GSI estimation: the integrated GSI-RMi system. Proc. I.S.R.M. Workshop "Underground Works under Special Conditions", Madrid, pp. 123-130
1637. Russo G. (2009): A New Rational Method for Calculating the GSI. Tunnelling and Underground Space Technology 24, pp.103-111.
1638. Rutledge J.C. and Preston R.L. (1978): New Zealand experience with engineering classifications of rock for the prediction of rock support. Proc. Int. Tunnelling Symposium, Tokyo, 1978, pp. A3 1-7.
1639. Rziha, F. (1867); Reproduced by Glückauf in 1986). Lehrbuch der gesammten Tunnelbaukunst. Verl. Ernst u Korn, Berlin, Vols. 1,2.
1640. Sadagah B.H., Sen Z. and Freitas M.H.D. (1990): A mathematical representation of jointed rock masses and its application. Proc. of Symp. on Mechanics of Jointed and Faulted Rock, 1990, pp. 65-70.

1641. Saeb S, Amadei B. (1992): Modelling rock joints under shear and normal loading. *Int. J. Rock Mech. Min. Sci. Geomech. Abstr.* 1992: 29 (3): pp. 267-78.
1642. Sagy A., Brodsky E.E. and Axen G.J. (2007): Evolution of fault-surface roughness with slip. *Geology*, (35)3, 283-286.
1643. Salamon M.D.G. (1974): Rock mechanics of underground excavations. In *Advances in rock mechanics*, Proc. 3rd Cong.ISRM., Denver 1B , pp. 951-1009. Washington, DC: National Academy of Sciences
1644. Salamon M.D.G. and Munro A.H. (1967): A study of the strength of coal pillars. *J. S. Afr. Inst. Min. Metall.* 65, pp. 55- 67.
1645. Salamon M.D.G. and Oravecz K.I. (1976): Rock mechanics in coal mining. Johannesburg: Chamber of Mines of South Africa. 119 p.
1646. Salamon M.D.G. (1984) Energy considerations in rock mechanics: fundamental results. *J. S. African Inst. Min. and Metall.*, 84: pp. 233–246.
1647. Sandström D. (2003): Analysis of the virgin state of stress at the Kiirunavaara mine. Licentiate thesis. Division of Rock Mechanics, Luleå University of Technology. 2003:02, ISSN: 1402-1757.
1648. Santarelli F.J. and Dusseault M.B. (1991): Core quality control in petroleum engineering. In Proc. 32nd U.S. Symp. on Rock Mechanics, Norman (Ed. J.-C. Roegiers), pp. 111–120. A.A. Balkema, Rotterdam.
1649. Santo A., Prete S., Crescenzo G. and Rotella M. (2007): Karst processes and slope instability: some investigations in the carbonate Apennine of Campania (southern Italy). *Natural and Anthropogenic Hazards in Karst Areas: Recognition, Analysis and Mitigation*. 279, pp.59-72.
1650. Sapigni M., Bert M., Bethaz E., Busillo A. and Cardone G. (2002): TBM performance estimation using rock mass classifications. *Rock Mechanics and Mining Sciences* 39, pp. 771-788.
1651. Sarkar S., Mukherjee A., Choi S. and Snee C.P.M. (2002): East Side Access Project's Manhattan Tunnels. *Proceedings*, International Tunnelling Association Conference, Sydney, Australia, March 2002
1652. Sarma S.K. (1979): Stability analysis of embankments and slopes. *J. Geotech. Eng. Div., ASCE.* 105 (GT12), pp. 1511- 1524.
1653. Sauer G. (1989): NATM ground support concepts and their effect on contracting practices. Proc. Rapid Excavation and Tunnelling Conference (Los Angeles), June 1989, p 67 - 85
1654. Sauer G. (1980): NATM tunnel instrumentation and in situ observations. *Tunnelling and Geology*, published by Department of Geology, Kings College, London. 1980, pp. 20 - 28
1655. Sauer G. (1990): NATM in soft ground. *World Tunnelling*, November 1990, pp. 431 – 437.
1656. Sauer G. (1986): The New Austrian Tunnelling Method; theory and practice. *Tunnel 4/86*, pp. 280 – 288.
1657. Sauer G. (1988): When an invention is something new; from practice to theory in tunnelling. *IMM Transactions 'Mining Industry'* Vol. 98, April 1988, pp. A94 - A108.
1658. Savin G.N. (1961): Stress concentrations around holes. London: Pergamon.

1659. Schaechterle (1926): Tunnelumbau in quellendem Gebirge, Kappelisbergtunnel bei Galldort, Bautechnik, 4, No. 30, 31, pp. 437-439, pp. 452-454.
1660. Schlotfeldt P.J.E. (1995): Assesment of Basalt Durability. Unpublished Report No. 1009/24/00. Lesotho Highlands Tunnel Partnership (Mohale). Lesotho Highlands Development Authority.
1661. Schmidt B. (1996): Discussion on „Earth pressures at Rest related to Stress History“. Canadian Geotechnical Journal Vol. 3 (1966), No.4, pp. 239–242.
1662. Schmuck C.H. (1979): Cable bolting at the Homestake gold mine. Mining Engineering, December, pp. 1677-1681.
1663. Schmertmann J.H. and Osterberg J.O. (1960): An experimental study of the development of cohesion and friction with axial strain in saturated cohesive soils. Research conference on shear strength of cohesive soils. Boulder, CO, New York, ASCE. pp. 643-94. [In Corthésy and Leite (2008)]
1664. Schmittbuhl J., Gentier S. and Roux S. (1993): Field-Measurements of the Roughness of Fault Surfaces. Geoph. Res. Lett., (20)8, pp. 639-641.
1665. Schneider H.J. (1976): The friction and deformation behaviour of rock joints. Rock Mechanics No. 8, pp. 169-184.
1666. Schnitter N.J. (1971): Interesting features of the Emosson power scheme. Water Power, May 1971, pp. 158-163.
1667. Schock R.N., Abey A.E., Bonner B.P., Duba A. and Heard, H.C. (1973): Mechanical properties of Nugget sandstone. Lawrence Livermore Laboratory Report, UCRL 51447, 1973.
1668. Scholz C.H. (1990): The mechanics of earthquakes and faulting. Cambridge University Press, Cambridge, USA, 438 p.
1669. Scholz K.A. (1953): The Schluchseewerk project. The Engineering Journal, July 1953, pp. 856-862, 865.
1670. Schottke R. (1993): Performance specification for the general drivage of tunnels conforming to VOB. Tunnel 3/93, pp. 167 – 174.
1671. Schrewe F. (1987): Findings in conjunction with the German Federal Railway's New Routes. Tunnel 3/87, pp. 102 – 117.
1672. Schrewe F. and Maidl R. (1987): Tunnelling with difficult rock behaviour – analysis of possible cause of damage and collapse. Proc. Bochum Conference 1987.
1673. Schubert P. and Vavrovsky G. M. (1994): Interpretation of NATM monitoring results. World Tunnelling, November 1994, pp. 351 – 356.
1674. Schubert W. and Richardson T. L. (1988): Soft ground tunnelling on the Seoul subway using NATM. Proc. 2nd Int. Conf. Case Studies in Geotechnical Engineering, (Paper 5.27), pp. 1011 – 1018.
1675. Schubert W. and Riedmuller G. (1995): Geotechnical gleanings from a collapse; Findings and Impulses. Technical paper of the Institute for Rock Mechanics and Tunnelling, Technical University of Graz, 1995.

1676. Schubert W., Goricki A., Button E., Riedmüller G., Pölsler P., Steindorfer A., Vanek R. (2001): Excavation and Support Determination for the Design and Construction of Tunnels. In P. Särkkä, P. Eloranta (eds.), EUROCK 2001; Proc. intern. symp., Espoo: pp. 383-388. Rotterdam: Balkema.
1677. Schubert W. and Goricki A. (2004): Probabilistic assessment of rock mass behaviour as basis for stability analyses of tunnels. Proc. Rock Mechanics Meeting, SvBeFo, Stockholm.
1678. Schwartz, A.E. (1964): Failure of rock in the triaxial shear test. Proc. 6th Rock Mechanics Symp., Rolla, Missouri, pp. 109-135.
1679. Schwotzer M. (2002): Natursteinverwitterung durch Gipswachstum: eine Modellstudie über die Umwandlung von Anhydrit zu Gips. Wasser- und Geotechnologie, 1/2002, pp. 42–48.
1680. Schwotzer M., Dehne G. and Gerdes A. (2007): Gips als nachwachsender Rohstoff. Nachrichten. Forschungszentrum Karlsruhe, Vol. 39 (2007), pp. 169–172.
1681. Scott J.J. (1976): Friction rock stabilizers - a new rock reinforcement method. In Monograph on rock mechanics applications in mining, (eds W.S. Brown, S.J. Green and W.A. Hustrulid), pp. 242-249. New York: Soc. Min. Engrs, Am. Inst. Min. Metall. Petrolm. Engrs.
1682. Scott J.J. (1983): Friction rock stabilizer impact upon anchor design and ground control practices. In Rock bolting: theory and application in underground construction, (ed. O. Stephansson), pp. 407-418. Rotterdam: Balkema.
1683. Seddon B.T. (1967): Discussion of Paper No. 6984, Proc. Instn. Civil Engineers, May 1967, pp. 661-666.
1684. Seeber G. (1976): Prestressing a power tunnel. Water Power and Dam Construction, April 1976, pp. 69-71.
1685. Seeber G., Keller S., Enzenberg A., Tagwerker J., Schletter R., Schreyer F. and Coleselli A. (1978): Methods of measurements for rock support and installations in road tunnels using the new Austrian tunnelling method. (in German). Bundesministerium f. Bauten u. Technik, Strassenforschung Heft 133, 200 p.
1686. Seeber G. (1985): Power conduits for high-head plants. Water Power and Dam Construction, Part 1 June 1985, pp. 50-54, Part 2, July 1985, pp. 95-98.
1687. Seed, H. B. (1954): Stability and Swell Pressure Characteristics of Compacted Clays. Clays and Clay Minerals no. 3 (1954), p. 433.
1688. Seidel J.P. and Haberfield C.M. (2002): A theoretical model for rock joints subjected to constant normal stiffness direct shear. Intn. J. Rock Mech. Min. Sci. 2002; 39 (5):539-53.
1689. Seidel J.P. and Haberfield C.M. (1995): Towards an understanding of joint roughness. Rock Mech. Rock Eng. 1995; 28: pp. 69-92.
1690. Seki J. et al. (1994): Effect of bench length on stability of tunnel face. 1994 ITA Conference, Tunnelling and Ground Conditions, pp. 531 - 542. Balkema publishers.
1691. Selmer-Olsen R. (1950): On faulting and crushed zones in the Bamble formation. (In Norwegian). Norsk geologisk tidsskrift, No 25, 1950, pp. 171-191.

1692. Selmer-Olsen, R. (1961): En regional undersøkelse av norske kvartære leirers finfraksjon basert på DTA (A regional investigation of the fine-fraction of Norwegian Quaternary clays based on DTA). Report to NTNF (Science and Technical Research of Norway), unpublished
1693. Selmer-Olsen R. (1964): Geology and engineering geology (in Norwegian). Tapir, Trondheim, Norway, 409 p.
1694. Selmer-Olsen R. (1969): Experience with unlined pressure shafts in Norway. Proc. Int. Symp. on Large Permanent Underground Openings, Oslo. University Press, 1970, pp. 327-332.
1695. Selmer-Olsen R. (1969): Experiences with using bolts and shotcrete in area with rock bursting phenomena. Proc. Intn. Symp. on Large Permanent Underground Openings, Oslo. University Press, pp. 275-278.
1696. Selmer-Olsen R. (1971): Engineering geology. Part 1. (in Norwegian). Tapir, Trondheim, Norway, 230 p.
1697. Selmer-Olsen R. (1976): Examples of behaviour of shotcrete linings underground. Proc. Engineering Foundation Conference (Easton). ACI publication nSP-54 1977, pp. 722 - 733.
1698. Selmer-Olsen R. (1981): Considerations of large water leakage in deep-seated tunnels. (In Norwegian with summary in English). Proc. Fjellsprengningsteknikk/Bergmekanikk/Geoteknikk 1981, Tapir, pp. 21.1-15.
1699. Selmer-Olsen R. (1985): Experience gained from unlined high pressure tunnels and shafts in hydroelectric power stations in Norway. Norwegian Hydropower Tunnelling, Publication No. 3, Norwegian Soil and Rock Engineering Association, Tapir, Trondheim, pp. 31-40.
1700. Selmer-Olsen R. (1988): General engineering design procedures. Norwegian Tunnelling Today, Tapir 1988, pp. 53-58
1701. Selmer-Olsen R. and Blindheim O.T. (1971): On the drillability of rock by percussive drilling. Proc. 2nd ISRM-Congress, Belgrade 1971, Vol. 3, Paper 5-8, pp. 65-70.
1702. Selmer-Olsen R. and Palmström A. (1989): Tunnel collapses in swelling clay zones, part 1. Tunnels & Tunnelling, November 1989, pp. 49 – 51.
1703. Selmer-Olsen R. and Palmström A. (1990): Tunnel collapses in swelling clay zones, part 2. Tunnels & Tunnelling, January 1990, pp. 55 – 58.
1704. Sen Z (1990): Cumulative core index for rock quality evaluations. International Journal of Rock Mechanics and Mining Sciences & Geomechanics Abstracts 27(2): pp. 87-94.
1705. Sen Z., Eissa E.A. (1991): Volumetric rock quality designation. J Geotech. Engn., Vol 117, No 9, 1991, pp. 1331 - 1346.
1706. Sen Z. and Eissa E.A. (1992): Rock quality charts for log-normally distributed block sizes. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 29, No. 1, pp. 1-12.
1707. Serafim J.L. and Guerreiro M. (1968): Shear strength of rock masses at 3 Spanish dam sites. Proc. Int. Symp. Rock Mech., Madrid, pp. 147 – 157.
1708. Serafim J.L. and Pereira J.P. (1983): Consideration of the geomechanics classification of Bieniawski. Proc. Int. Symp. on Engeneering Geology and Undeground constructions, pp. 1133 - 1144.

1709. Seshagiri Rao K., Venkatappa Rao G. and Ramamurthu T. (1987): Discussion of paper by K.L. Gunsallus and F.H. Kulhawy, "A comparative evaluation of rock strength measures". Int. J. Rock Mech. Min. Sci. & Geomech. Abstr. Vol. 24, No. 3, pp. 193-196.
1710. Sernageomin (2003): Mapa Geológico de Chile: Publicación Geológica Digital, No. 4, 2003. CD-ROM, Versión 1.0. Base Geológica a escala 1:1.000.000, Santiago de Chile.
1711. Shah S. (1992): A study of the behaviour of jointed rock masses. Ph.D. thesis, Dept. Civil Engineering, University of Toronto.
1712. Sharma V.M., Singh R.B. and Chaudhary R.K. (1989): Comparison of different techniques and interpretation of the deformation modulus of rock mass. Proc. Indian Geotechnical Conference (IGC), Visakhapatnam, Vol. I, pp. 439 – 443.
1713. Sharma V.M. and Singh R.B. (1989): Deformability of rock mass. Proc. Conf. Application of rock mechanics in river valley projects, Roorkee, pp. II-7 – II-12.
1714. Sharma V.M., Singh R.B. and Chaudhary R.K. (1990): Rock mechanics investigation of a water resources project. Proc. Trend in geotechnical investigations in last twenty five years, Indian Society of Engineering Geology, Calcutta, pp. 177 – 186.
1715. Sharma V.M. and Singh R.B. (1990): Deformability of rock mass using Goodman jack. 56th Research & Development Session of Central Board of Irrigation and Power, pp. 99 – 101.
1716. Sharma S. and Judd W.R. (1991): Underground opening damage from earthquakes. Engineering Geology, 30: pp. 263–276.
1717. Sharp J.C. and Gonano L.P. (1982): Rock engineering aspects of the concrete lined pressure tunnels of the Drakensberg pumped storage scheme. Proc. ISRM Symposium, Rock Mechanics: Caverns and Pressure Shafts, Aachen, May 1982, pp. 717-733.
1718. Sharp J.C., Smith M.C.F., Thoms I.M. and Turner V.D. (1986): Tai Koo Cavern, Hong Kong - performance of a large metro excavation in a partially weathered rock mass. In Large Rock Caverns (ed. K.H.O. Saari). 1 , pp. 403-423. Oxford: Pergamon
1719. Sheen Mr., Justice M.V. (1987): Herald of Free Enterprise. Report of the Formal Investigation, Dept of Transport. London. HMSO 1987.
1720. Sheorey P.R. (1994): A theory for in situ stresses in isotropic and transversely isotropic rock. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr. 31(1), pp. 23-34.
1721. Sheorey P.R. (1997): Empirical rock failure criteria. A. A. Balkema, Rotterdam. ISBN 90 5410 6700.
1722. Sheorey P.R., Biswas A.K. and Choubey V.D. (1989): An empirical failure criterion for rocks and jointed rock masses. Eng. Geol. 26, pp. 141–159.
1723. Shi G.H. and Goodman R.E. (1981): A new concept for support of underground and surface excavations in discontinuous rocks based on a keystone principle. In Rock mechanics from Research to Applications, Proc. 22nd. U.S. Symp. for Rock Mechanics, Cambridge. pp. 290- 296. Cambridge, Mass.: Massachusetts Institute for Technology.
1724. Shi G.H. and Goodman R.E. (1989): The key blocks of unrolled joint traces in developed maps of tunnel walls. Int. J. Numerical and Analytical Methods in Geomechanics 13, pp. 131-158.

1725. Shou G., Kulatilake P.H.S.W., Huang T.H. and Morgan R.M. (1995): New peak shear strength criteria for anisotropic rock joints. *Int J. Rock Mech. Min. Sci. Geomech. Abstr.* 1995; 32(7): pp. 673-97.
1726. Siddique A. (1990): A numerical and experimental study of sampling disturbance. PhD. thesis, University of Surrey.
1727. Silveira A.F. (1990): Some considerations on the durability of dams. *Water Power and Dam Construction*, pp. 19-28.
1728. Simpson B. et al. (1989): The engineering implications of rising groundwater levels in the deep aquifer beneath London. *Construction Industry Research and Information Association, London – Special Publication 69.* 1989.
1729. Singh B. (1973): Continuum characterization of jointed rock masses Part I-the constitutive equations. *Int. J. Rock Mech. Sci. & Geomech. Abstr.* 1973; 10, pp. 311-335.
1730. Singh B (1973): Continuum characterization of jointed rock masses Part II - significance of low shear modulus. *Int. J. Rock Mech. Sci. & Geomech. Abstr.* 1973;10, pp. 337-349.
1731. Singh B. and Goel R.K., (1999): Rock mass classification: A practical approach in civil engineering. Elsevier publisher, Amsterdam, 267 p.
1732. Singh J., Ramamurthy T. and Venkatappa Rao G. (1989): Strength anisotropies in rocks. *Ind. Geotech. J.*, 19(2), pp. 147-166.
1733. Singh R.B., Haridev, Dhawan A.K. and Sharma V.M. (1994): Deformability of rock mass by plate jacking and Goodman jack test. *Proc. Indian Geotechnical Conference (IGC)*, pp. 385 – 388.
1734. Singh R. and Bhasin R. (1996): Q-system and deformability of rock mass. *Proc. of Conf. on Recent Advances in Tunnelling Technology*, New Delhi, pp. 57 – 67.
1735. Singh R. and Rajvansi U.S. (1996): Effect of excavation on modulus of deformation. *Proc. of Conf. on Recent Advances in Tunnelling Technology*, New Delhi, pp. 57 – 67.
1736. Singh R. and Dhawan A.K. (1999): Experience of deformability measurement using Goodman jack. *Proc. Of Int. Conf. On Rock Engn. Techniques for Site Characterization*, Bangalore, India, pp. 29-36.
1737. SINTEF (1990): Deformation and rock stress measurements at Svartisen power plant, Efjord and Stetind road tunnels (in Norwegian). SINTEF Report no. STF36 F90059
1738. SINTEF (1993): Fullface boring Dalåa - Torsbjørka (in Norwegian). Final report made for Merkraft A/S.
1739. Sjöberg J. (1999): Analysis of large scale rock slopes. PhD. thesis 1999:01. Division of Rock Mechanics, Luleå University of Technology, ISSN: 1402-1544
1740. Sjöberg J., Lundman P. and Nordlund E. (2001): Analys och prognos av utfall i bergschakt (in Swedish). KUJ 1045. Slutrapport. LKAB Utredning 01-762.
1741. Sjöberg J. (2003): Bergspänningsmätning i Renström (in Swedish). SwedPower Report 1663300-01 (confidential).

1742. Sjöberg J. (2005): Rock mechanics analysis of the copper orebody. SwedPower Report 2050700-01 (confidential).
1743. Sjöberg J., Lundman P. and Nordlund E. (2001): Analys och prognos av utfall i bergschakt (in Swedish), KUJ 1045. Slutrapport. LKAB Utredning 01-762.
1744. Sjöberg J. and Malmgren L. (2008): Application of global-local modelling to mining rock mechanics problems. In: Proc. First International FLAC/DEM Symposium on Numerical Modelling, Minneapolis, Aug 25-27, 2008.
1745. Sjöberg J., Bertilsson R. and Christiansson R. (2008): Overcoring in Deep Surface Boreholes Recent Experiences and Lessons for the Future. American Rock Mechanics Association. The 42nd US Rock Mechanics Symposium and 2nd US-Canada Rock Mechanics Symposium, San Francisco, June 29-July 2.
1746. Sjögren B., Övstthus A. and Sandberg J. (1979): Seismic classification of rock mass qualities. Geophysical Prospecting, Vol. 27, No. 2, pp. 409-442.
1747. Sjögren B. (1984): Shallow refraction seismics. Chapman and Hall, London, 270 p.
1748. SKB (1992): Passage through water-bearing fracture zones. Investigations during passage of fracture zone EW-7 and NE-3. SKB PR-25-92-18A, Svensk Kärnbränslehantering AB.
1749. SKB (2005): Preliminary site description Forsmark area - version 1.2. Updated 2005-11-09.
1750. SKB R-05-18, Svensk Kärnbränslehantering AB.
1751. SKB (2006): Preliminary site description. Laxemar subarea - version 1.2. SKB R-06-10, Svensk Kärnbränslehantering AB.
1752. SKB (2006): Long-term safety for KBS-3 repositories at Forsmark and Laxemar - a first evaluation. Main report of the SR-Can project. Report TR-06-09.
1753. SKB (2007): Underground Design Premises/D2. SKB Report R-07-33. Svensk Kärnbränslehantering AB (SKB), Stockholm, Sweden.
1754. SKB, (2007): Deep repository, Underground Design Premises D2, "UDP/D2". SKB R-07-33, Svensk Kärnbränslehantering AB.
1755. SKB (2008): Site description of Forsmark at completion of the site investigation phase. SDM Site Forsmark. Report TR-08-05. Svensk Kärnbränslehantering AB (SKB), Stockholm, Sweden.
1756. SKB (2008): Site Engineering Report Forsmark. Guidelines for underground design step D2. Report R-08-83. Svensk Kärnbränslehantering AB (SKB), Stockholm, Sweden.
1757. SKB (2008): Underground design Forsmark. Layout D2. Report R-08-116. Svensk Kärnbränslehantering AB (SKB), Stockholm, Sweden.
1758. Skempton A.W. (1964): Long term stability of clay slopes. 4th Rankine Lecture, Géotechnique, 14, pp. 77-101.
1759. Skjeggedal T. (1984): Fullface boring of tunnels and shafts. Hard Rock Underground Engineering, FHS, Norway, 1984, pp. 241-270.
1760. Smith R.E. (2001): Geotechnical Baseline Reports: State of the Practice. Proc. 36th Ann. Symp. Engineering Geology and Geotechnical Engineering, Las Vegas, Nevada, pp.501-505.

1761. Snee C.P.M. (1991): The Importance of Support Stiffness in Deep Tunnels. Proceedings, Tunnelling '91 Conference, London, 1991, pp. 101-107.
1762. Snee C.P.M. (1992): A review of Tunnelling Research. *Tunnels and Tunnelling*, Vol. 21, April 1992, pp. 42-44.
1763. Snee C.P.M. (1992): Geological and Geotechnical Aspects of the Bradford Flood Alleviation Scheme. Proceedings, Conference of River and Coastal Engineers, MAFF, Loughborough, 1992, 9 p.
1764. Snee C.P.M. (1992): Modelling Compressed Air Losses from a Tunnel in Sand. Proceedings, Engineering and Health in Compressed Air Conference, CIRIA, Oxford, 1992, pp.183-195.
1765. Snee C.P.M. (1994): Development of a Model for Reinforced Altered Granite. Proceedings, Geotropica '94 Conference, Malacca, Malaysia, 1994, 7 p.
1766. Snee C.P.M. and Javadi A.A. (1996): Estimation of Air Flow in Compressed Air Tunnelling. *Journal of Tunnelling and Underground Space Technology*, Vol. 11, No.2, 1996, pp. 189-195.
1767. Snee C.P.M. (1996): Post-Construction Audit of Sprayed Concrete Tunnel Linings. *Health and Safety Executive Research Report 92/1996*, ISBN 07176 1026 8, 1996, 81 p.
1768. Snee C.P.M. and Waters C.N. (1997): Physical Properties of Carboniferous Sandstones from the Bradford Area, West Yorkshire, British geological Survey Technical Report WA197/30 1997. 27 p.
1769. Snee C.P.M. and Javadi A.A. (1997): A New Procedure for Compressed Air Tunnelling. *Ground Engineering*, Vol. 30(7), August 1997, 34 p.
1770. Snee C.P.M., Sarkar S., Benslimane A., Stewart C. and Osborne C. (2003): Rock Mass Characterization for the Manhattan East Side Access Project. Proceedings, *Soil and Rock America Conference*, Cambridge MA, USA, 2003.
1771. Snee C.P.M., Ponti M.A. and Shah A.R. (2004): Geologic Considerations in the Planning of the Second Avenue Subway Alignment in New York City. Proceedings, Northeastern Section (39th Annual) and Southeastern Section (53rd Annual) Joint Meeting, Washington DC, USA, 2004. GSA Abstracts Vol. 36, No. 2.
1772. Snee C.P.M., Ponti M.A. and Shah A.R. (2004): Investigation of complex geologic conditions for the Second Avenue subway tunnel alignment in New York City. Proceedings, NAT'04 American Underground Association Conference, Atlanta, GA, 2004.
1773. Snee C.P.M. et al. (2006): What to do when construction projects go bad. Proceedings, Lorman Education Services, ASIN BOOONIZAB8, July 2006.
1774. Snee C.P.M. (2008): Engineering Geology and Cavern Design for New York City. Proceedings, NAT'08 American Underground Association Conference, San Francisco, CA, 2008.
1775. Snow D. (1966): Disc'n. Theme III, Int. Congr. Rock Mech., Lisbon.
1776. Snow D. (1968): Fracture deformation and changes of permeability and storage upon changes of fluid pressure. *Quarterly Colorador School of Mines*, 63, pp. 201-244.

1777. Söder P.-E. and Krauland N. (1990): Determination of pillar strength by full scale pillar tests in the Laisvall mine. In Proc. 11th Plenary Scientific Session of the Int. Bureau Strata Mechanics, World Mining Congress, Novosibirsk (Ed. A. Kidybiński and J. Dubiński), pp. 39–59. A.A. Balkema, Rotterdam.
1778. Solvik, O. (1984): Unlined tunnel hydraulics. Hard Rock Underground Engineering, FHS, Norway, 1984, pp. 87-108.
1779. Solvik, O. (1984): Underwater piercing of a tunnel. Water Power and Dam Construction, November 1984.
1780. Sonmez H. and Ulusay R (1999): Modifications to the geological strength index (GSI) and their applicability to stability of slopes, International Journal of Rock Mechanics & Mining Sciences, v. 36, pp. 743–60.
1781. Sonmez H., Nefeslioglu H.A. and Gokceoglu C. (2004): Determination of wJd on rock exposures including wide spaced joints. Technical note. Rock Mech. Rock Engn. 37 (5), pp. 403-413.
1782. Sönmez H., Gökçeoğlu C., Nefeslioğlu H.A. and Kayabaşı A. (2006): Estimation of rockmodulus: for intact rocks with an artificial neural network and for rock masses with a new empirical equation. Int. J. Rock Mech. Min. Sci. 43, pp. 224–235.
1783. Sönmez, H., Ulusay, R., (2007) Engineering Properties of Rock Masses, second ed. TMMOB Chamber of Geological Engineers of Turkey, 60, Ankara, 292 p (in Turkish).
1784. Soos I.G.K. 1979. Uplift pressures in hydraulic structures. Water Power and Dam Construction. 31(5), pp. 21-24.
1785. Sörheim S. (1981): Rock stress variations and support in the Heggura road tunnel, Norway (in Norwegian). MSc. thesis. Norwegian Institute of Technology, Trondheim.
1786. Spaun G. (1974): Zur Frage der Sohlhebungen in Tunneln des Gipskeupers. In: Festschrift Leopold Müller-Salzburg zum 65. Geburtstag, pp. 245-260.
1787. Spaun G. (1974): Über die Ursachen von Sohlhebungen in Tunneln der Gipskeupers. Festschrift Leopold Müller-Salzburg zum 65. Geburtstag, Karlsruhe, pp. 245–260.
1788. Spaun G. (1979): Über die Ursachen von Quellhebungen im Gipkeuper. Berichte 2. Nationale Tagung über Ingenieurgeologie, Fellbach, pp. 143–151.
1789. Spang R.M. and Rautenstrauch R.W. (1988): Empirical and mathematical approaches to rockfall prediction and their practical applications. Proc. 5th International Symposium on Landslides, Lusanne. Vol. 2. pp. 1237-1243.
1790. Spencer R., Laverty B. and Barber D. (1964): Unlined tunnels of the Southern California Edison Company. ASCE Power Journal, Paper No. 4087, No. 3, October, 1964, pp. 105-132.
1791. Sridevi J. and Sitharam T.G. (2000): Analysis of Strength and Moduli of Jointed Rocks. Int. J. Geotech. Geological Engn., 2000, 18, pp. 1-19.
1792. Sridevi J., Sitharam T.G. and Chandrashekhar H.M. (2000): Simulation of jointed rock behavior using finite element method. J. Rock Mech. Tunneling Techn., India 2000, 6(2), pp. 113-132.
1793. SS-EN 445. Admixtures for concrete, mortar and grout - Test methods - Part 4: Determination of bleeding of concrete.

1794. SS-EN 1997-1. Eurokod 7: Dimensionering av geokonstruktioner - Del 1: Allmänna regler. Swedish Standards Institute.
1795. Stacey T.R. (1981): A simple extension strain criterion for fracture of brittle rock. *Int J Rock Mech Min Sci & Geomech Abstr* 18, pp. 469-474
1796. Stacey T. and Page C.H. (1986): Practical Handbook for Underground Rock Mechanics, vol. 12 of Series on Rock and Soil Mechanics. Trans Tech Publications, Clausthal-Zellerfeld, Germany.
1797. Staub I., Fredriksson A. and Christiansson R. (2003): A theoretical model for the characterisation of rock mass mechanical properties – Application at the Äspö HRL, Sweden. In: Proceedings of the 10th congress of the ISRM, 8-12 September 2003, vol 2, South Africa. The South African institute of mining and metallurgy, Johannesburg, pp. 1161-1166.
1798. St Joseph J.K.S. (1957): A survey of pioneering in air photography. In W.F. Grimes (ed.), Aspects of Archaeology, pp. 305—315.
1799. St Joseph J.K.S. (1977): The Uses of Air Photography, 2nd edn, John Baker, London.
1800. Stang T. and Aadal T. (1991): Fullface boring at Svartisen power plant (in Norwegian). Final dissertation work University of Trondheim, Norway
1801. Startzman, R.A. and Wattenbarger, R.A. (1985): An improved computation procedure for risk analysis problems with unusual probability functions. *Proc. symp. Soc. Petrolm. Engrs hydrocarbon economics and evaluation*, Dallas.
1802. Steiner W. (1989): Wisenbergtunnel, Bahn 2000. Veröffentlichungen der FGU -SIA Tagung, Juradurchquerungen, Délemont, SIA-FGU, Tagungsbericht D 037, Zürich, pp. 69–80.
1803. Steiner W. (1993): Swelling rock in tunnels: Characterization, effect of horizontal stresses and Construction Procedures. *Int. J. of Rock Mechanics and Mining Sciences & Geomech. Abstracts* Vol. 30 (1993), No.4, pp. 361–380.
1804. Steiner W. (2007): Einfluss der Horizontalspannungen auf das Quellverhalten von Gipskeuper. *Felsbau* 25 (2007), No. 1, pp. 1–10.
1805. Steiner W. and Metzger R. (1988): Erfahrung aus Tunneln in quellendem Gestein, Bahn 2000 Wisenberg-Tunnel, Report, IG Wisenbergtunnel.
1806. Steiner W., Rossi P.P. and Devin P. (1989): Flatjack Measurements in the Lining of the Hauenstein Tunnel as a Design Base for the New Wisenberg Tunnel. *Proc. Int. Congr. on Tunnelling*, Toronto.
1807. Steiner W., Kaiser P. and Spaun G. (2010): Brittle fracture in weak rock as trigger of swelling behavior: Qualitative evidence and analyses. *Geomechanics and tunneling*, vol. 3, issue 5, pp. 583 – 596.
1808. Steinheuser G. and Maidl B. (1985): Bochum Ring Road-Planning and choice of construction method. *Rock Mechanics and Rock Engineering* 1985, Vol. 18, Part 2, pp. 63 – 76.
1809. Stephenson D.E. and Triandafilidis G.E. (1974): Influence of specimen size and geometry on uniaxial compressive strength of rock. *Bull. Ass. of Engn. Geol.*, Vol Xi, No. 1, 1974, pp. 29-47.
1810. Stephansson O. and Ångman P. (1984): Hydraulic fracturing stress measurements at Forsmark and Stidsvig, Sweden. Research Report TULEA 1984:30, Luleå University, Luleå, Sweden.

1811. Stephansson O. (1993): Rock stress in the Fennoscandian Shield. In Comprehensive Rock Engineering - Rock Testing and Site Characterization (Ed. J. A. Hudson), vol. 3, pp. 445–459. Pergamon Press, Oxford.
1812. Stesky R.M. and Hannan S.S. (1987): Growth of contact area between rough surfaces under normal stress. *Geophys Res Lett* 1987;14(5):550-3.
1813. Stillborg B. (1994): Professional users handbook for rock bolting, 2nd edn. Clausthal-Zellerfeld: Trans Tech Publications.
1814. Stille H. (1976): Behaviour of anchored sheet pile walls. Ph.D. Thesis, Royal Institute of Technology, KTH, Stockholm, Sweden 1976
1815. Stille H. and Broms B. (1976): Failure of anchored sheet pile walls. ASCE, Jn Geotech. Div, March 1976, GT3, pp 235-251.
1816. Stille H., Groth T. and Fredriksson A. (1982): FEM-analysis of rock mechanical problems with JOBFEM, Stiftelsen Bergteknisk Forskning – BeFo, Stockholm, 307:1/82.
1817. Stille H. and Nord G. (1983): Support technique for a large silo in poor rock. *Rock. Mech. and Rock Eng.*, 16, pp. 233-252
1818. Stille H. (1986): Experiences of design of large caverns in Sweden. Proc. Int. Conf. Large Rock Caverns, Pergamon Press.
1819. Stille H. and Nord G. (1988): Bore and blast techniques in different types of rock: Sweden's experience. *Tunnelling and Underground Space*, Vol. 3, No. 1
1820. Stille H. and Fredriksson A. (1988): Measurements, calculations and stability prognoses at the SRF undersea repository for low and medium level nuclear waste. *Tunnelling and Underground Space*, Vol. 3, No. 3.
1821. Stille H. Holmberg M. and Nord G. (1989): Support of weak rock with grouted bolts and shotcrete. *Int. Journal on Rock Mechanics, Min. Sci.* Vol. 26, No. 1
1822. Stille H., Hässler L. and Håkansson U. (1992): Classification of jointed rock with emphasis on grouting. *Tunnelling and Underground Space*. Vol. 7, No. 4.
1823. Stille H., Hässler L. and Håkansson U. (1992): Computer-simulated flow of grouts in jointed rock. *Tunnelling and Underground Space*. Vol. 7, No. 4.
1824. Stille H., Hässler L. and Håkansson U. (1992): Rheological properties of microfine cement grouts. *Tunnelling and underground space*. Vol. 7, No. 4
1825. Stille H. (1992): Rock support in theory and practice. In Proc. Int. Symp. on Rock Support in Mining and Underground Construction, Sudbury (Ed. P. K. Kaiser and D. R. McCreath), pp. 421–438. A. A. Balkema, Rotterdam.
1826. Stille H., Gustafson G., Olsson P. and Håkansson U. (1993): Experiences from the grouting of the section 0-1400 m of tunnel Äspö Hard Rock Laboratory. SKB Progress report 25-92-19 (1993)
1827. Stille H., Janson T. and Olsson P. (1994): Experiences from the grouting of the section 1340-2565 M of the tunnel. Äspö Hard Rock Laboratory. SKB Progress Report 25-94-13 (1994)
1828. Stille H. and Sturk R. (1995): Design and excavation of rock caverns for fuel storage – A case study from Zimbabwe. *Tunnelling and Underground Space Technology*, 1995.

1829. Stille H. (1996): Summary of rock mechanical results from the construction of Äspö Hard Rock Laboratory. Progress Report HRL-96-07, Swedish Nuclear Fuel and Waste Management Company, Stockholm, Sweden.
1830. Stille H. (1997): Swedish Research Work Regarding Grouting of Rock -30 years. Proc. Bergmekanikdagen, SveBeFo, Stockholm, ISSN 0281-4714. Pp 133-148.
1831. Stille H., Sturk R. and Olsson L. (1998): Quality systems and risk analysis. Special Conf. Underground Construction in Modern Infrastructures, Stockholm, June 1998.
1832. Stille H., (2000): Squeezing behaviour - Observation and monitoring. Italian Geotechnical Journal Anno XXXIV, n1-Gemaio-Marzo 2000.
1833. Stille H. (2001): Rock support in theory and practice. In Text book on Underground Mining Methods, Society for mining and exploration, INC. (SME), Chapter 62, pp. 535-547, SME, (2001)
1834. Stille H., Andersson J. and Olsson L. (2003): Information based design in rock engineering. SveBeFo, Stockholm (2003), 147 p.
1835. Stille H. and Palmström A. (2003): Classification as a tool in rock engineering. Tunnelling and underground space technology, Vol. 18, 2003, pp. 331 – 345.
1836. Stille H. and Isaksson T. (2005, Model for estimation of time and cost for tunnel projects based on risk evaluation. Int. journal for Rock Mechanics and Rock Engineering, Vol. 38, No 5.
1837. Stille H., Holmberg M., Olsson L. and Andersson J. (2005): Design of rock-structure interaction with probabilistic method. SveBeFo, Stockholm 2005, 104 p. In Swedish with English summary.
1838. Stille B. (2007): Injekteringsmodell prövad mot data frill praktikfall (in Swedish). Proc. to the Rock Mechanics Meeting, Stockholm, ISSN 0281-4714, pp 85-100.
1839. Stille H. and Palmström A. (2008): Ground behaviour and rock mass compositions in underground excavations. Tunnelling and Underground Space Technology 23 (2008), pp. 46–64.
1840. Stille H. and Palmström A. (2011): Rock Engineering and Tunnelling - a Nordic approach. ITA congress, Helsinki, 2011. 33 p.
1841. Stimpson B. (1982): A rapid field method for recording joint roughness profiles. Technical note. Int. J. Rock Mech. Min. Sci & Geomech. Abstr., Vol 19, pp. 345-346, 1982
1842. Stine H., Gustafson G., Håkansson U. and Olsson P. (1993): Passage through water-bearing fracture zones. Experiences from the grouting of the section 1-1,400 m of the tunnel. SKB PR-25-92-19, Svensk Kärnbränslehantering AB.
1843. Stini I. (1950): Geology in tunnel construction (in German). Springer publishers, Vienna, 366 p.
1844. Stini J. (1974): Landslides, engineering geology of dams, reservoirs, tunneling, groundwater effects in rock masses and tectonics. Austrian Society for Geomechanics, 1974, Karlsruhe.
1845. Stojkovic H., Stojkovic G., Uzaravic D. and Grget G. (2009): Classification of carbonate and clastic rock masses by RMR and Q-system. Proc. Eurock 2009: Rock Engineering in Difficult Ground Conditions - Soft Rocks and Karst. Vrkljan (ed.) pp. 361-366.

1846. Strassburger A.G. (1981): High head underground power project presents design/construction challenges. Rapid Excavation and Tunnelling Conference Proc., San Francisco, 1981, pp. 1149-1166.
1847. Strassburger A.G. (1982): Hydrofracturing at Helms. Water Power and Dam Construction, October 1982, pp. 25-28.
1848. Strömquist R. and Palmström A.: Sub-sea pipeline shore approaches combined with process and storage facilities in rock. Offshore Oil and Gas Pipeline Technology Seminar, London, 1987, 23 p.
1849. Sturk R. (1998): Engineering geological information — its value and impact on tunnelling. PhD thesis, Division of Soil and Rock Mechanics, Royal Institute of technology (KTH), Stockholm.
1850. STUVA (Kohn) for TBG (Munchen). Research Report into improving accident prevention and stress in workers in tunnelling, 1986.
1851. Sun Jun; Zhang De-xing; Li, Cheng-jiang. (1986): The Coupled-Creep Effect of Pressure Tunnels Interacting with its Water-Osmotic Swelling Viscous ElastoPlastic Surrounding Rocks. Proceedings, Peking.
1852. Sundberg J., Wrafter J., Back P-E. and Rosén L. (2008): Thermal properties Laxemar. Site descriptive modelling SDM-Site Laxemar. Rapport R-08-61. Swedish Nuclear Fuel and Waste Management Company.
1853. Sundberg J., Back P-E., Ericsson L.O. and Wrafter J. (2009): Estimation of thermal conductivity and its spatial variability in igneous rocks from in situ density logging. International Journal of Rock Mechanics and Mining Sciences, Vol. 46, pp. 1023-1028.
1854. Surber A. (1959): Experimental investigations to determine suitable designs of pressure shaft linings for large power stations. Escher Wyss News, Vol. 32, No. a, 1959, pp. 3-11.
1855. Svanholm B.O., Persson P-A. and Larsson B. (1977): Smooth blasting for reliable underground openings. In Storage in excavated rock caverns, Rockstore 77: Storage (ed. M. Bergman) 3, pp. 573-579. Oxford: Pergamon.
1856. Swan G. (1981): Tribology and the characterization of rock joints. Proc. 22nd US Symp.on Rock Mechanics, MIT. 1981, pp. 432-437.
1857. Swan G. (1983): Determination of stiffness and other joint properties from roughness measurements. Rock Mech. Rock Eng. 1983; 16: pp.19-38.
1858. Swan G. (1985): Strength distributions and potential for multiple pillar collapse. Division Report MRP 85-127 (TR), Canada Centre for Mineral and Energy Technology (CANMET), Ottawa, Canada.
1859. Swam G. Zongqi S. (1985): Prediction of shear behaviour of joints using profiles. Rock Mech. Rock Eng. 1985;18:183-212.
1860. Swedenborg S. (2001): Rock mechanical effects of cement grouting in hard rock. PhD. thesis, Chalmers University of Technology, Department of Geotechnical Engineering, Gothenburg.
1861. Swedish Standard. (1991): Mechanical vibration and shock – Guidance levels for blast-induced vibration in building. SS 460 48 66 (in Swedish). Swedish Standards Institute, 6 p.

1862. Szunyong, G., (2010) Stability assessment of caves and its results. Óbuda University e- Bulletin. 1(1), 243-251.
1863. Takahashi M. (1972): The 1125 MW pumped-storage scheme at Shintoyone. Water Power, February, 1972, pp. 51-56.
1864. Takano A. et al. (1981): The tunnelling by NATM in heavy squeezing pressure zone, and the study on the ground arch around the tunnel. Proc. Int. Symposium on Weak Rock, Tokyo, September 1981, pp. 939 – 944.
1865. Talobre J. (1952): The present state of underground penstock technique. La Houille Blanche, Vol. 7, No. B, 1952, pp. 513-531 (in French).
1866. Talobre J. (1957): La mecanique des roches. Paris: Dunod
1867. Tamrock (1989): Surface drilling and blasting. Tamrock Drills, Finland, 479 p.
1868. Tapponnier P. and Brace W. F. (1976): Development of stress-induced microcracks in Westerly granite. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.,13: pp. 103–112.
1869. Tarbuck E.J. and Lutgens F.K. (1986): The Earth - An introduction to physical geology. Ch. 14: Earthquakes. Merrill Publ. Co., pp. 355-361.
1870. Tarkoy, P.J. and Hendron, A.J. Jr. (1975) Rock Hardness Index Properties and Geotechnical Parameters for Predicting Tunnel Machine Performance. Report for NSF Grant GI-36468, University of Illinois.
1871. Tatchell G.E. (1991): Automatic data acquisition systems for monitoring dams and landslides. Proc. 3rd Int. symp. on Field Measurements in Geomechanics, Oslo, Norway.
1872. Tatone B.S.A. and Grasselli G. (2009): Use of a stereo-topometric measurement system for the characterization of rock joint roughness in-situ and in the laboratory, in: RockEng09: Proc. 3rd CANUS Rock Mechanics Symposium, Toronto. M. Diederichs and G. Grasselli (Eds.).
1873. Tatone B.S.A. and Grasselli G. (2009): A method to evaluate the 3D roughness of fracture surface in brittle geo-materials. Rev. Sci. Instrum. 2009; 80:125110.
1874. Tatone B.S.A. and Grasselli G. (2010): A new 2D discontinuity roughness parameter and its correlations with JRC. Int. J. Rock Mech. Mining Sci., doi:10.1016/j.ijrmms.2010.06.006.
1875. Telford W.M., Geldart L.P. and Sheriff RE. (1990): Applied Geophysics. 2nd edn, Cambridge University Press, Cambridge, 770 p.
1876. Terzaghi K. (1925): Erdbaumechanik auf Bodenphysikalischer Grundlage. Vienna: Franz Deuticke.
1877. Terzaghi K. (1936): Presidential Address. Proc. 1st Int. Conf. for Soil Mechanics and Foundations Engineering, Cambridge, Mass. 1, 22-3.
1878. Terzaghi K. (1945): Stress conditions for the failure of saturated concrete and rock. Proc. Am. Soc. Test. Mater. 45, pp. 777-801.
1879. Terzaghi K. (1946): Rock defects and loads on tunnel supports. Introduction to tunnel geology. In Rock tunneling with steel supports, (eds. R. V. Proctor and T. L. White) 1, 17-99. Youngstown, OH: Commercial Shearing and Stamping Company. pp. 5 - 153.
1880. Terzaghi K. and Richart F.E. (1952): Stresses in rock about cavities. Geotechnique 3, pp. 57-90.

1881. Terzaghi K. (1953): Fifty years of subsoil exploration. Proc. 3rd Int. Conf. Soil Mech. and Found. Eng, Zurich, Volume 3, pp. 227-237.
1882. Terzaghi K. (1953): Report concerning the causes of the Whatshan slides. 1953, File GR 925, Provincial Archives of British Columbia, Victoria, Canada.
1883. Terzaghi R. (1965): Sources of error in joint surveys. Geotechnique, Vol 15, 1965, pp. 287-304.
1884. Terzaghi R. and Voight B. (1979): Karl Terzaghi on rockslides: the perspective of a halfcentury. In Rockslides and Avalanches (ed. B. Voight), Part 2, pp. 111-131. New York: Elsevier.
1885. Thomann G. (1969): The Ronkhausen pumped storage scheme. Water Power, August 1969, pp. 289-296.
1886. Thorn L.J. and Muller D.S. (1964): Prestressed roof support in underground engine chambers at Free State Geduld Mines Ltd. Trans. Assn Mine Mngrs S. Afr., pp. 411-428.
1887. Thorpe R., Watkins D.J., Ralph W.E., Hsu R. and Flexser S. (1980): Strength and permeability tests on ultra-large Stripa Granite core. Technical information report No. 31. Lawrence Berkeley Laboratory, University of California Berkeley.
1888. Thorgrimsson S., Loftsson M. and Jensson O. (1991): Iceland's Blanda hydroelectrical project: Monitoring of deformations, rock support and testing of rock anchors in the powerhouse cavern. Tunnelling. and Underground Space Technology, Vol. 6, No. 2, pp.235-239.
1889. Thorpe R., Watkins D.J., Ralph W.E., Hsu R. and Flexser S. (1980): Strength and permeability tests on ultra-large Stripa granite core. Technical Information Report No.31, Lawrence Berkeley Laboratory, University of California, 200 p.
1890. Thorpe R. and Brown G. (1985): The field description of igneous rocks. Geological Society of London Handbook, Open University Press, Milton Keynes, 154 p.
1891. Thut A., Steiner P. and Stolz M. (2006): Tunnelling in Squeezing Rock – Yielding Elements and Face Control. Proc. 8th International Con. on Tunnel Constructions and Underground Structures, Ljubljana, Slovenia, pp. 150-157.
1892. Tirén S.A. and Beckholmen M. (1992): Rock block map analysis of southern Sweden. Geologiska Föreningens i Stockholm Förhandlingar, Vol. 114, Pt. 3, pp. 253 - 269.
1893. Tokheim O. and Janbu N. (1982): Flow rates of air and water from caverns in soil and rock. ISRM intn. symp. on Rock Mechanics, Aachen, 1982, Vol. 3, pp. 1335-1344.
1894. Tomlin N., Plumb A. and Snee C.P.M. (1987): Thermal Effects During In Situ Concrete Lining of Shafts. European Coal and Steel Commission, 1987.
1895. Tondevold E. (1971): Pumped storage in Norway. International Conference on Pumped Storage Development and Its Environmental Effects, University of Wisconsin, Milwaukee, September 1971, pp. 124-130.
1896. Torblaau I., Schieldrop B. and Palmström A. (1976): Dam Tunsbergsdalsvatn, a dam subjected to waves generated by avalanches and to extreme floods from a glacier lake. Int. Congr. on Large Dams 12 Mexico 1976, Transactions, Vol. III p. 861 -875.
1897. Tourtelot H.A. (1974): Geologic origin and distribution of swelling clays. Bull. Ass. of Engn. Geol., Vol XI, No. 4, 1974, pp. 259-275.

1898. Trantina J.A. and Cluff L.S. (1964): "NX" bore-hole camera. Proc. Symp. on Soil Exploration, Philadelphia, American Society Testing and Materials, Spec. Tech. Pub. No. 351, pp. 108-117.
1899. Tse R. and Cruden D.M. (1979): Estimating Joint Roughness Coefficient. Int. J. Rock. Mech. Min. Sci. & Geomech. Abstr. v. 16, pp. 303-307.
1900. Tsidzi K.E.N. (1986): A quantitative petrofabric characterization of metamorphic rocks. Bull. Int.Assoc. Engng. Geol. no 33, pp. 3 - 12.
1901. Tsidzi K.E.N. (1987): Foliation index determination for fine-grained metamorphic rocks. Bull. Int.Assoc. Engng. Geol. no 36, pp. 27 - 33.
1902. Tsidzi K.E.N. (1987): Compressive strength anisotropy of foliated rocks. Proc. symp. on Mechanics of Jointed and Faulted Rock; Balkema, Rotterdam, pp. 421 - 428.
1903. Tsoutrelis C.E., Exadactylos G.E. and Kapenis A.P. (1990): Study of the rock mass discontinuity system using photoanalysis. Proc. of Symp. on Mechanics of Jointed and Faulted Rock, 1990, pp. 103-112.
1904. Tucker M.E. (1982): The field description of sedimentary rocks. Geological Society of London Handbook, Open University Press, Milton Keynes, 112 p.
1905. Turk N., Dearman W.R. (1985): Investigation of some rock joint properties: Roughness angle determination and joint closure. Proc. of Int. Symp. on Fundamentals of Rock Joints, Björkliden Sweden 1985, pp 197 -204.
1906. Turk N., Grieg M.J., Dearman W.R. and Amin F.F. (1987): Characterization of rock joint surfaces by fractal dimension. In I. W. Farmer, J. J. K. Daeman, C. S. Desai, C. E. Glass, & S. P. Neuman (Eds.), Proceedings of 28th U.S. Rock Mechanics Symposium, Tuscon, AZ, 29 June -1 July 1987: pp. 1223- 1236. Rotterdam: A.A. Balkema.
1907. Tyler D.B., Trueman. R. and Pine. R.J. (1991): Rockbolt support design using a probabilistic method of key block analysis. Proc. 32nd U.S. Symp. Rock Mechanics, Norman, Oklahoma, pp. 1037-47.
1908. Tzamos S. and Sofianos A. I. (2007): A correlation of four rock mass classification systems through their fabric indices. Intern. Journal of Rock Mechanics and Mining Sciences 44, pp. 477-495
1909. Uff J.F. and Clayton C.R. (1986): Recommendations for the procurement of ground investigation. Construction Industry Research and Information Association Special Publication 45.
1910. Uff J.F. and Clayton C.R. (1991): Role and responsibility in site investigation. Construction Industry Research and Information Association Special Publication 73, 42 p.
1911. Ullmann F. (1962): The Vianden pressure shaft. Water Power, May 1962, pp. 181-186.
1912. Ullmann F. (1964): External water pressure designs for steel-lined pressure shafts. Water Power, July 1964, pp. 298-305 (Part 1) and August 1964, pp. 338-342 (Part 2).
1913. Ulriksen C.P.F. (1983): Application of impulse radar to civil engineering. Doctoral Thesis, Lund University of Technology, Sweden, published by Geophysical Survey systems, Inc., U.S.A.
1914. Unal E. (1983): Design guidelines and roof control standards for coal mine roofs. Ph.D. Thesis, The Pennsylvania State University, 1983.

1915. Ursin B. (1983): Review of elastic and electromagnetic wave propagation in horizontally layered media. *Geophysics*, 48, pp. 1063-1081.
1916. US. Army Corps of Engineers (1978): Tunnels and shafts in rock. *Engineering Manual 1110-2-2901*, 15 September 1978.
1917. US. Army Corps of Engineers (1968): Hydraulic design criteria. Waterways Experiment Station, Report Reference No. 1-17 AD A092 237,238 (2 Volumes), originally published 1952, revised 1968.
1918. USACE (1997): Engineering and design; Tunnels and shafts in rock. U.S. Army Corps of Engineers, Manual no. 1110-2-2901, 236 p.
1919. USNC/TT (1984): Geotechnical site investigations for underground projects. U.S. National Committee on Tunnelling Technology, National Research Council, Washington D.C.
1920. VanOlpen, H. (1963): Clay Colloid Chemistry. J. Wiley & Sons, New York, London.
1921. Van Zijl J.S.V. (1978): On the uses and abuses of the electrical resistivity method. Bullet in of the Association of Engineering Geologists, 15 (1), pp. 85—111.
1922. Vandewalle, M. (1993): Dramix: Tunnelling the world. 3rd edn. Zwevegem, Belgium: N.V. Bekaert S.A.
1923. Vanmarcke, E.H. (1980): Probalistic analysis of earth slopes. *Engineering Geology* 16: pp. 29-50.
1924. Varnes D.J. (1984): Landslide hazard zonation: a review of principles and practice. *Natural Hazards* 3. UNESCO, Paris, 63 p.
1925. Vasak P. and Kaiser P.K. (1995): Tunnel stability assessment during rockbursts. In Proc. CAMI'95: 3rd Canadian Conference on Computer Applications in the Mineral Industry, Montreal (Ed. H. S. Mitri), pp. 238–247. McGill University, Montreal.
1926. Vaughan E.W. (1956): Steel linings for pressure shafts in solid rock. *Proc. ASCE, Journal of the Power Division*, Paper No. 949, April 1956, 39 p.
1927. Vavrovsky G. M. (1987): What are the limits of NATM? *Tunnel* 3/87, pp. 92 – 102.
1928. Vavrovsky G. M. and Schubert P. (1994): Interpretation of (NATM) Monitoring Results. *World Tunnelling*, November 1994, pp. 351-356.
1929. Vavrovsky G. M. and Schubert P. (1995): Advanced analysis of monitored displacements opens a new field to continuously understand and control. *Proc. ISRM Congress*, Tokyo, September 1995.
1930. Ventner J.P. (1981): Free swell properties of some South African mudrocks. *Proc. of int. Symp. on weak rock*, Vol. 1. Balkema Amsterdam, pp. 233 – 242.
1931. Vermeer P.A. and de Borst R. (1984): Non-associated plasticity for soils, concrete and rock. *Heron*, vol. 29, no.3.
1932. Vietor T., Blümling P. and Armand G. (2007): Tunnel- und Bohrlochdeformationen; Frühjahrstagung der Schw. Gesellschaft für Boden- und Felsmechanik, Fribourg, Mitteilungen No. 154, pp. 41–44.

1933. Vlasov S.N., Makovski L.V. and Merkin V.E. (2001): Accidents in Transportation and Subway Tunnels (in Russian?). Elex KM., Moscow.
1934. Vogege M., Fairhurst C. and Cundall P.A. (1978): Analysis of tunnel support loads using a large displacement, distinct block model. In Storage in excavated rock caverns (ed. M. Bergman) 2, pp. 247-252. Oxford: Pergamon
1935. von Karman Th. (1911): Festigkeitsversuche unter allseitigem Druck. Zeit d Ver Deutscher Ing. 55, pp. 1749-1757.
1936. von Kimmelman M.R., Hyde B. and Madgwick R.J. (1984): The use of computer applications at BCL Limited in planning pillar extraction and the design of mine layouts. In Design and performance of underground excavations, (eds. E.T. Brown and J.A. Hudson), pp. 53-64. London: Brit. Geotech. Soc. VSL Systems Ltd. 1982. Slab post tensioning. Switzerland.
1937. Vovk A.A., Mikhalyuk A.V. and Belinski I.V. (1974): Development of fracture zones in rocks during camouflet blasting. Soviet Mining Science, 1974.
1938. Vutukuri V.S., Lama R.D. and Saluja S.S. (1974): Handbook on Mechanical Properties of Rocks. Vol. 1 -3, Trans Tech Publications, Clausthal, 1974.
1939. Wagner H. (1987): Design and support of underground excavations in highly stressed rock. In Proc. 6th ISRM Int. Congress on Rock Mechanics, Montreal (Ed. G. Herget and S. Vongpaisal), vol. 3, pp. 1443–1457. A.A. Balkema, Netherlands.
1940. Wahlgren C-H., Curtis P., Hermanson J., Forssberg O., Öhman J., Fox A., La Pointe P., Drake H., Triumf C-A., Mattsson H., Thunehed H. and Juhlin C. (2008): Geology Laxemar. Site descriptive modelling SDM-Site Laxemar. SKB R-08-54, Svensk Kärnbränslehantering AB, Stockholm, Sweden.
1941. Wahlstrom, E.E. (1973): Tunnelling in rock. Amsterdam Elsevier, 250 p.
1942. Wakabayashi N. and Fukushige I. (1995): Experimental study on the relation between fractal dimension and shear strength. Fractured and jointed Rock Masses, Myer, Cook, Goodman & Tsang (Eds). Balkema. Rotterdam, pp. 125-131.
1943. Wakeling T.R.M. (1970): A comparison of the results of standard site investigations methods against the results of a detailed geotechnical investigation in Middle Chalk at Mundford, Norfolk. Proc. Conf. on In situ Investigations in Soils and Rocks, British Geotechnical Society, London, pp. 17-22.
1944. Wakizaka Y. and Anan S. (2003): Deterioration of concrete due to laumontite and its mechanism. International Symposium on Industrial Minerals Building Stones (IMBS 2003), 2003.9.
1945. Wallis P.F., King M.S. (1980): Discontinuity spacings in a crystalline rock. Technical note, Int. J. Rock Mech. Min. Sci & Geomech Abstr., Vol 17, 1980, pp 63 - 66.
1946. Wallis S. (1988): Avoiding a NATM downfall. Tunnels and Tunnelling (1988), reprinted in NATM special edition, Summer 1990, pp. 46 - 51.
1947. Wallis S. (1990): Counting the cost of NATM downfalls. Tunnels and Tunnelling (1987) reprinted in NATM special edition, Summer 1990.
1948. Wallis S. (1993): NATM and instrumentation. World Tunnelling, April 1993, pp. 128 - 130.

1949. Wallis S. (1995): NATM challenge at Montemor Tunnel. *Tunnels and Tunnelling*, December 1995, pp. 32 - 34.
1950. Waltham A.C. and Fookes, P.G. (2005): Engineering classification of karst ground conditions. *Speleogenesis and Evolution of Karst Aquifers*. 3(1), www.speleogenesis.info, 20 p., re-published from Quarterly Journal of Engineering Geology and Hydrogeology. 2003, 36, pp.101-118.
1951. Wang X.B. (2007): Effect of dilation angle on failure process and mechanical behaviour for a rock specimen with initial random material imperfections. *Rock Mechanics: Meeting Society's Challenges and Demands*. Edited by Eberhardt, Stead and Morrison. Taylor & Francis Group, London, ISBN 978-0-415-44401-9, pp. 371-378.
1952. Waninger K. (1982): Accident black spots associated with the New Austrian Tunnelling method. *Tiefbau*, 2/1982, pp. 64 - 77.
1953. Wanninger R. (1979): New Austrian Tunnelling Method and finite elements. Proc. 3rd Int. Conf. Numerical Methods in Geomechanics (Aachen), April 1979, pp. 587-597.
1954. Warburton P.M. (1981): Vector stability analysis of an arbitrary polyhedral block with any number of free faces. *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.* 18, pp. 415-427.
1955. Ward W.H. (1978): Ground supports for tunnels in weak rocks. *The Rankine Lecture*. *Geotechnique* 28, No. 2, pp. 133-171.
1956. Warkentin, B.P., Bolt, G.H. and Miller, R.D. (1957): Swelling Pressure of Montmorillonite. *Proc. Soil Sci. Soc. Amer.* no. 21, p. 495.
1957. Water Power (1953): Wahleach. *Water Power*, October 1953, pp. 362-369.
1958. Water Power (1958): The Sarca Molveno scheme. *Water Power*, September, 1958, pp. 327-334, October, 1958, pp. 368-376.
1959. Water Power (1962): The development of the Ume River. *Water Power*, January, 1962, pp. 25-35.
1960. Water Power (1962): The Hinterhein development. *Water Power*, October 1962, pp. 405-411, November 1962, pp. 425-433.
1961. Water Power (1964): High pressure tests for steel-lined shaft of Electra-Massa development. *Water Power*, July 1964, pp. 321-322.
1962. Water Power (1968): Lake Maggiore pumped-storage scheme. *Water Power*, October 1968, pp. 390-392.
1963. Water Power (1970): The Lake Maggiore project. *October 1970*, pp. 346-355.
1964. Water Power (1971): The Waldeck 2 Station. *Water Power*, August, 1971, pp. 275-285.
1965. Water Power (1972): A 292MW pumped-storage plant under construction in Ireland. *Water Power*, May 1972, pp. 171-181.
1966. Water Power and Dam Construction (1972): The Foyers project in Scotland. Vol. 24, No. 5, 1972, pp. 161-170.
1967. Water Power and Dam Construction (1983): Tunnel collapses on Tyee Lake project. December 1983, p. 4.

1968. Waters C.N. and Snee C.P.M. (1996): A Geological Background for Planning and Development in the City of Bradford Metropolitan District. Vol 2: A Technical Guide to Ground Conditions, British Geological Survey Technical Report WA/96/1, 1996, 126 p.
1969. Watkins M.D. (1971): Terminology for describing the spacing of discontinuities of rock masses. Q.J. Engr. Geol., Vol 3, 1971, pp. 193 - 195.
1970. Wawersik W.R. and Fairhurst C. (1970): A study of brittle rock fracture in laboratory compression experiments. Intnl. J. Rock Mech. J. Sci., Vol. 7, No. 5, pp. 561-575.
1971. Wawersik W.R. and Brace W.F. (1971): Post failure behaviour of a granite and a diabase. Rock Mechanics, Vol. 3, No. 2, pp. 61-85.
1972. Weber J. (1987): Limits of shotcrete construction methods in urban railway tunnelling. Tunnel, 3/87, pp. 116 - 126.
1973. Webster R. (1968): Discussion on the air photograph requirements of geologists. (see Norman 1968), Photogrammetric Record, 6 (32), pp. 146-147.
1974. Wei Z.Q. and Hudson J.A. (1986): Moduli of jointed rock masses. Proc. International Symposium on Large Rock Caverns. Helsinki. 1986. pp. 1073-86.
1975. Welsh J. P. and Rubright R. M. (1994): Compaction grouting in the United States. Proc. conf. 'Grouting in the Ground', Thomas Telford Ltd, London, pp. 349-359.
1976. West G. (1979): A preliminary study of the reproducibility of joint measurements in rock. TRRL Report SR 488, Transport and Road Research Laboratory, Crowthorne, Berks.
1977. West, G. (1981) A review of rock abrasiveness testing for tunneling, Proc. Int. Symp. on Weak Rocks, Vol.1, pp. 585-594.
1978. West, G. (1989) Rock abrasiveness testing for tunnelling, Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., Vol. 26, No.2, pp. 151-160.
1979. Westin S. (1951): Investigations of rock mass deformability using expansion measurements of steel lined penstocks. NTH-Trykk, Trondheim, 1951, 20 pp. (in Norwegian).
1980. Whitman R.V. (1984): Evaluating calculated risk in geotechnical engineering. J. Geotech. Enng, ASCE 110(2), pp. 145-186.
1981. Whittaker B.N. and Frith R.C. (1990): Tunnelling: Design, Stability and Construction. The Institution of Mining and Metallurgy, London, U.K., 460 p.
1982. Whyte I.L. (1976): The development of site investigations. Ground Engineering, 9(7), pp. 35-38.
1983. Wichter L. (1989): Quellen anhydrithaltiger Tongesteine. Bautechnik 66 (1989), Heft 1, pp. 1-6.
1984. Wichter L. (1991): Horizontal stresses in anhydriteous rock. Proc. Int. Congr. Rock mechanics, Aachen, pp. 367-370.
1985. Wickens E.H. and Barton N. (1971): The application of photogrammetry to the stability of excavated rock slopes. Photogram. Rec., 7(37), pp. 46-54.
1986. Wickham G.E., Tiedemann H.R. and Skinner E.H. (1972): Support determination based on geologic predictions. In Proc. North American rapid excav. tunneling conf., Chicago, (eds K.S.

- Lane and L.A. Garfield), pp. 43-64. New York: Soc. Min. Engrs, Am. Inst. Min. Metall. Petrolm Engrs.
1987. Wiesmann E. (1974): Ueber die Stabilität von Tunnelmauerwerk, Schweiz Bauzeitung. 64, No.3, pp. 27-32.
1988. Wiles T.D. and Kaiser P.K. (1990): A new approach for the statistical treatment of stress tensors. In Proc. Stresses in Underground Structures, Ottawa (Ed. G. Herget, B. Arjang, M. Bétournay, M. Gyenge, S. Vongpaisal and Y. Yu), pp. 62–76. Canadian Government Publishing Centre, Ottawa, Canada.
1989. Wiles T.D. and Kaiser P.K. (1994): In situ stress determination using the underexcavation technique—I. Theory. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr., 31(5):439–446.
1990. Williamson D.A. (1980): Uniform rock classification for geotechnical engineering purposes. Transportation Research Record 783, National Academy of Sciences, Washington D.C, pp. 9-14.
1991. Williamson, D.A. (1984): Unified rock classification system. Bull Assoc. Eng. Geol. XXI (3), 345–354.
1992. Williamson D.A. and Kuhn C.R (1988): The unified classification system. Rock Engineering Systems for Engineering Purposes, ASTM STP 984, American Society for Testing Materials, Philadelphia, pp. 7 - 16.
1993. Winberg A., Andersson P., Hermanson J., Byegård J., Cvetkovic V. and Birgersson L. (2000): Äspö Hard Rock Laboratory, Final report of the first stage of the Tracer Retention Understanding Experiments. SKB TR-00-07, Svensk Kärnbränslehantering AB.
1994. Windsor C.R. (1990): Ferruled strand. Unpublished memorandum. Perth: CSIRO.
1995. Windsor C.R. (1992): Cable bolting for underground and surface excavations. In Rock support in mining and underground construction, proc. int. symp. on rock support, Sudbury, (eds P.K. Kaiser and D.R. McCreathe), pp. 349-376. Rotterdam: Balkema.
1996. Winther T. et al., (1994): From plate tectonics to the design of the Dul Hasti hydroelectric project in Kashmir (India). Engineering Geology 36 (1994). 211 – 241
1997. Wittke-Gattermann, P. (2003): Dimensioning of Tunnels in Swelling Rock. ISRM 2003, South African Institute of Mining and Metallurgy.
1998. Wittke W.W. (1965): Method to analyse the stability of rock slopes with and without additional loading. (in German) Felsmechanik und Ingenieurgeologie, Supp. 11, 30 , pp. 52-79. English translation in Imperial College Rock Mechanics Research Report, no. 6, July 1971.
1999. Witte N. and Louis C. (1969): Several quick tests for determining the mechanical character of rocks. Geotechnical Colloq., Toulouse, France
2000. Wood D. (1991): Estimating Hoek-Brown rock mass strength parameters from rock mass classifications. Transportation Research Record 1330, pp. 22-29.
2001. Wood, D.F. (1992): Specification and application of fibre reinforced shotcrete. In Rock support in mining and underground construction, proc. int. symp. on rock support, Sudbury, (eds. P.K. Kaiser and D.R. McCreathe), pp. 149-156. Rotterdam: Balkema.

2002. Wood D.F., Banthia, N. and Trottier, J-F. (1993): A comparative study of different steel fibres in shotcrete. In Shotcrete for underground support VI, Niagara Falls, pp. 57-66. New York: Am. Soc. Civ. Engrs.
2003. Worotnicki, G. and Walton, R.J. (1976): Triaxial ‘hollow inclusion’ gauges for determination of rock stresses in situ. Proc symp. ISRM on Investigation of Stress in Rock, Sydney. Supplement 1-8. Sydney: Institution of Engineers, Australia.
2004. Wrafter J., Back P-E., Christiansson R. and Sundberg J. (2010): 3D modelling of thermal conductivity in heterogeneous crystalline rock: a stochastic simulation approach. Int. conf. on Rock Mechanics in the Nordic Countries, Kongsberg, Norway, 10 p.
2005. Xie H. and Pariseau W.G. (1992) Fractal estimation of joint roughness coefficients. In: Myer LR, Cook NGW, Goodman RE, Tsang CF, editors. Proceedings of the conference on fractured jointed rock masses, Lake Tahoe, CA, 3–5 June 1992. Rotterdam: Balkema; p. 125–31.
2006. Xuecheng D. (1993): Rock mechanics investigations related to the three gorges dam project. News Journal of International Society for Rock Mechanics, Vol. 1, No. 4, pp. 6-15.
2007. Yaji R.K. (1984): Shear strength and deformation of joined rocks. Ph.D. thesis, Indian Institute of Technology, Delhi, India, 1984.
2008. Yang Z.Y., Lo S.C. and Di C.C. (2001): Reassessing the joint roughness coefficient (JRC) estimation using Z2. Rock Mechanics and Rock Engineering, (34)3, pp. 243-251.
2009. Yazici S. and Kaiser P.K. (1992): Bond strength of grouted cable bolts. Int J. Rock Mech. Min. Sci. & Geomech. Abstr. 29(3), pp. 279-292.
2010. Yonekura R. (1997): The developing process and the new concepts of chemical grout in Japan. Grouting and Deep Mixing. Proc. to the 2nd International Conference on Ground Improvement Geosystems, Tokyo, 1996, pp. 889-901.
2011. Yong, R.N. and Warkentin, B.P. (1966): Introduction to Soil Behavior. The Macmillian Company. New York.
2012. Yong S., Kaiser P.K., Löw S. and Corrado F. (2008): The Role of heterogeneity on the development of excavation induced fractures in the Opalinus Clay. Canadian Geotechnical Conference, Edmonton.
2013. Yoshida H. and Horii. H. (1998): Micro-mechanics based continuum analysis for the excavation of large-scale underground cavern. Proc. SPE/ISRM Rock Mechanics in Petroleum Engineering. Vol.1I. 1998, pp. 209-218.
2014. Yoshida M. (1979): The Okuyoshina pumped storage station. Water Power and Dam Construction, October 1979, pp. 41-52.
2015. Youash Y.Y. (1966): Experimental deformation of layered rocks. Proc. 1st Congr. Int. Soc. Rock Mech., Lisboa, pp. 787 - 795.
2016. Young W. and Falkiner R.H. (1966): Some design and construction features of the Cruachan pumped storage project. Proc. Instn. of Civil Eng., Vol. 35, November 1966, Paper No. 6984, pp. 407-450.
2017. Yu C.W., Chen J.C. and Snee C.P.M. (1997): Physical Model Test for Simulating Tunnel Creep in Soft Rock. Proceedings, 7th Conference of Current Research in Geotechnical Engineering in Taiwan, Taipei, 1997.

2018. Yu C.W., Chen J.C. and Snee C.P.M. (1998): Creep Characteristics of Weak Rock. Proceedings, Regional Symposium on Sedimentary Rock Engineering, Taipei, Taiwan, 1998.
2019. Yu C.W., Chen J.C. and Snee C.P.M. (1999): Physical Modelling for Creep Parameters of Soft Rock. Proceedings, Rock Mechanics for Industry, 37th US Rock Mechanics Symposium, Vail, USA, 1999, pp. 919-926.
2020. Yu C.W., Chern J.C. and Snee C.P.M. (2000): Creep Characteristics of Soft Rock and Creep Modelling of Tunnels. *Proceedings*, International Tunnelling Association Conference, Durban, South Africa, 2000.
2021. Yu X.B. and Vayssade B. (1991): Joint profiles and their roughness parameters. *Int. J. Rock. Mech. Min. Sci. & Geomech. Abstr.* (28)4, pp. 333-336.
2022. Yudhbir, Lemanza W. and Prinzl F. (1983): An empirical failure criterion for rock masses. In: Proceedings of the 5th International Congress on Rock Mechanics, Melbourne, Balkema, Rotterdam, 1, pp. B1-B8.
2023. Zagars A. (1982): Bath County pumped storage project underground features. *Intn. Symp. on Rock Mechanics*, Aachen, 1982, pp. 507-518.
2024. Zettler A., Poisel R.; A. Preh A. and Konietzky H (2010): Tunnelling in swelling rock – a solved problem? Proc. 59th Geomechanics colloquium, published in Geomechanics and tunneling, vol. 3, issue 4.
2025. Zhang, L. (2008): A generalized three-dimensional Hoek-Brown strength criterion. *Rock Mech Rock Engng.* Published online 3 April 2008. DOI 10.1007/s00603-008- 0169-8.
2026. Zhang L. and Einstein H. (2004): Using RQD to estimate the deformation modulus of rock masses. *Int J Rock Mech Min Sci* 41(2): pp. 337 – 41.
2027. Zhang Y., Miti H.S. (2008): Elastoplastic stability analysis of mine haulage drift in the vicinity of mined stopes. *Int J Rock Mech Min Sci* 45: 574-593
2028. Zheng Z., Kemeny J. and Cook N.G.W. (1989): Analysis of borehole breakouts. *J. Geophys. Res.* 94(B6), pp. 7171-7182.
2029. Zienkiewicz O.C., Kelly D.W. and Bettess P. (1977): The coupling of the finite element method and boundary solution procedures. *Int. J. Numer. Methods Engr.* 1977, 11, pp. 355-375.
2030. Zimmermann R.W. and Bodvarsson G.S. (1996): Hydraulic conductivity of rock fractures. *Transport in Porous Media*. Vol. 23, pp 1-30.
2031. Zoback M.L. (1992): First- and second-order patterns of stress in the lithosphere: the World Stress Map Project. *J. Geophys. Res.* 97(B8), pp. 11761-11782.