

**Refereed Journal Papers**

King, M., W. Pettitt, J. Haycox and R. Young. "Acoustic Emissions Associated with the Formation of Fracture Sets in Sandstone Under Polyaxial Stress Conditions," *Geophys. Prosp.*, doi: 10.1111/j.1365-2478.2011.00959.x (2011).

Mas Ivars, D., M. E. Pierce, C. Darcel, J. Reyes-Montes, D. O. Potyondy, R. P. Young and P. A. Cundall. "The Synthetic Rock Mass Approach for Jointed Rock Mass Modelling," *Int. J. Rock Mech. Min. Sci.*, **48**, 219-244 (2011).

Pettitt, W., M. Pierce, B. Damjanac, J. Hazzard, L. Lorig, C. Fairhurst, I. Gil, M. Sanchez, N. Nagel, J. Reyes-Montes and R. P. Young. "Fracture Network Engineering for Hydraulic Fracturing," *The Leading Edge*, **30**(8), 844-853, doi 10.1190/1.3626490 (2011).

Benson, P.M., S. Vinciguerra, P. G. Meredith and R. P. Young . "Spatio-Temporal Evolution of Volcano Seismicity: A Laboratory Study," *Earth Planet. Sci. Lett.*, doi:10.1016/j.epsl.2010.06.033 (2010).

Timms, N. E., D. Healy, J. M. Reyes-Montes, D. S. Collins, D. J. Prior, and R. P. Young. "Effects of Crystallographic Anisotropy on Fracture Development and Acoustic Emission in Quartz," *J. Geophys. Res.*, **115**, B07202, doi:10.1029/2009JB006765 (2010).

Nasseri, M.H.B., A. Schubnel, P. M. Benson and R. P. Young. "Common Evolution of Mechanical and Transport Properties in Thermally Cracked Westerly Granite at Elevated Hydrostatic Pressure," *PAGEOPH*, **166**(5-7), doi 10.1007/s00024-009-0485-2 (July 2009).

Nasseri, M.H.B., B.S.A. Tatone, G. Grasselli and R. P. Young. "Fracture Toughness and Fracture Roughness Interrelationship in Thermally Treated Westerly Granite," *PAGEOPH*, **166**(5-7), doi:10.1007/s00024-009-0476-3 (2009).

Thompson, B. D., R. P. Young and D. A. Lockner. "Premonitory Acoustic Emissions and Stick-Slip in Natural and Smooth Faulted Westerly Granite" (Short Title: AE and CT Imaging of a Natural Fault), *J. Geophys. Res.*, **114**, B02205, doi:10.1029/2008JB005753 (2009).

Benson, P. M., S. Vinciguerra, P. G. Meredith and R. P. Young. "Laboratory Simulation of Volcano Seismicity," *Science*, **322**, 249-252 (2008).

Townend, E., B. D. Thompson, P. M. Benson, P. G. Meredith, P. Baud and R. P. Young. "Imaging Compaction Band Propagation in Diemelstadt Sandstone Using Acoustic Emission Locations," *Geophys. Res. Lett.*, **35**, L15301, doi:10.1029/2008GL034723 (2008) .

Benson, P.M., B. D. Thompson, P. G. Meredith, S. Vinciguerra and R. P. Young. "Imaging Slow Failure in Triaxially Deformed Etna Basalt Using 3D Acoustic-Emission Location and X-Ray Computed Tomography," *Geophys. Res. Lett.*, **34**, L03303, doi:10.1029/2006GL028721 (2007).

Katsaga, T., and R. P. Young. "Acoustic Emission and X-Ray Tomography Imaging of Shear Fracture Formation in Concrete," *JAE*, **25**, 294-307 (2007).

Katsaga, T., E. G. Sherwood, M. P. Collins and R. P. Young. "Acoustic Emission Imaging of Shear Failure in Large Reinforced Concrete Structures," *Int. J. Fract.*, **148**(1), 29-45 (November 2007).

Mair, K., C. Marone and R. P. Young. "Rate Dependence of Acoustic Emissions Generated during Shear of Simulated Fault Gouge," *Bull. Seism. Soc. America*, **97**(6), 1841-1849, doi:10.1785/0120060242 (2007).

Mair, K., C. Marone and R. P. Young. "Rate Dependence of Acoustic Emissions Generated during Shear of Simulated Fault Gouge," *Bull. Seism. Soc. America*, **97**(6), 1841-1849, doi:10.1785/0120060242 (2007).

Nasseri, M.H.B., A. Schubnel and R. P. Young. "Coupled Evolutions of Fracture Toughness and Elastic Wave Velocities at High Crack Density in Thermally Treated Westerly Granite," *Int. J. Rock Mech. Min. Sci.*, **44**(4), 601-616, (June 2007).

Nasseri M.H.B., B. Mohanty and R. P. Young. "Fracture Toughness Measurements and Acoustic Emission Activity in Brittle Rocks," *PAGEOPH*, **163**(5-6), 917-945, 10.1007/s00024-006-0064-8, 10.1007/s00024-006-0064-8 (June 2006).

Schubnel, A., B. D. Thompson, J. Fortin, Y. Gueguen and R. P. Young. "Fluid-Induced Rupture Experiment on Fontainebleau Sandstone: Premonitory Activity, Rupture Propagation, and Aftershocks," *Geophys. Res. Lett.*, **34**, L19307, doi:10.1029/2007GL031076 (2007).

Wanne, T.S., and R. P. Young. "Bonded-Particle Modeling of Thermally Fractured Granite," *Int. J. Rock Mech. Min. Sci.*, **45**(5), 789-799, doi:10.1016/j.ijrmms.2007.09.004 (2007).

Benson, P., A. Schubnel, S. Vinciguerra, C. Trovato, P. Meredith and R. P. Young. "Modelling the Permeability Evolution of Micro-cracked Rocks from Elastic Wave Velocity Inversion at Elevated Hydrostatic Pressure," *J. Geophys. Res.*, **111**, B04202, doi:10.1029/2005JB003710 (2006).

Schubnel, A., P. Benson, B. Thompson, J. Hazzard and R. P. Young. "Quantifying Damage, Saturation and Anisotropy in Cracked Rocks by Inverting Elastic Wave Velocities," *PAGEOPH*, **163**(5-6), 947-973 (June), doi:10.1007/s00024-006-0061-y (2006).

Schubnel, A., E. Walker, B. D. Thompson, J. Fortin, Y. Guéguen and R. P. Young. "Transient Creep, Aseismic Damage and Slow Failure in Carrara Marble Deformed across the Brittle-Ductile Transition," *Geophys. Res. Lett.*, **33**(17), L17301, doi: 10.1029/2006GL026619 (September 2006).

Thompson, B. D., R. P. Young and D. A. Lockner. "Fracture in Westerly Granite under AE Feedback and Constant Strain Rate Loading: Nucleation, Quasi-Static Propagation and the Transition to Unstable Fracture Propagation," in *Rock Damage and Fluid Transport, Part I*, *PAGEOPH* Topical Volume, doi:10.1007/3-7643-7712-7 (2006).

Al-busaidi A., J. F. Hazzard and R. P. Young. "Distinct Element Modeling of Hydraulically Fractured Lac du Bonnet Granite," *J. Geophys. Res.*, **110**(6), doi: 10.1029/2004JB003297 (September 2005).

Hildyard, M. W., R. P. Young, D. S. Collins and W. Pettitt. "Seismic Wave Propagation to Diagnose the State of Fracturing," *J. S. Afr. Inst. Min. Metall.*, **105**, 437-447 (2005).

Iwata, T., and R. P. Young. "Tidal Stress/Strain and the b-Value of Acoustic Emissions in the Underground Research Laboratory, Canada," *PAGEOPH*, **162**(6-7), 1291-1308, doi:10.1007/s00024-005-2670-2 (June 2005).

Merles, I. L., T. Chow, C. D. Martin and R. P. Young. "Assessing In Situ Microcrack Damage Using Ultrasonic Velocity Tomography," *Int. J. Rock Mech. Min. Sci.*, **42**, 25-34 (2005).

Reyes-Montes, J., A. Rietbrock., R. P. Young and D. S. Collins. "Relative Location of Excavation Induced Microseismicity at the Underground Research Laboratory (AECL Canada) Using Surveyed Reference Events," *Geophys. Res. Lett.*, **32**, L05308, doi:10.1029/2004GL021733 (2005).

Thompson, B. D., R. P. Young and D. A. Lockner. "Observations of Premonitory Acoustic Emission and Slip Nucleation during a Stick Slip Experiment in Smooth Faulted Westerly Granite," *Geophys. Res. Lett.*, **32**(10), L10304, doi:10.1029/2005GL022750 (May 2005).

Hazzard, J. F., and R. P. Young. "Dynamic Modelling of Induced Seismicity," *Int. J. Rock Mech. Min. Sci.*, **41**, 1365-1376 (2004).

Hazzard J. F., and R. P. Young. "Numerical Investigation of Induced Cracking and Seismic Velocity Changes in Brittle Rock," *Geophys. Res. Lett.*, **31**, L01604, doi:10.1029/2003GL019190 (2004).

Young, R. P., D. S. Collins, J. M. Reyes and C. Baker. "Quantification and Interpretation of Seismicity," *Int. J. Rock Mech. Min. Sci.*, **41**(8), 1317-1327 (2004).

Collins D. S., W. S. Pettitt and R. P. Young. "High-Resolution Mechanics of a Micro-Earthquake Sequence," *PAGEOPH*, Special Issue on Induced Seismicity, **159**, 197-219 (2002).

Debski, W., and R. P. Young. "Tomographic Imaging of Thermally Induced Fractures in Granite Using Bayesian Inversion," *PAGEOPH*, Special Issue on Induced Seismicity, **159**, 277-307 (2002).

Hazzard J. F., and R. P. Young. "Moment Tensors and Micromechanical Models," *Tectonophysics*, **356**, 181-197 (2002).

Hazzard J. F., D. S. Collins, W. S. Pettitt and R. P. Young. "Simulation of Unstable Fault Slip in Granite Using a Bonded-Particle Model," *PAGEOPH*, Special Issue on Induced Seismicity, **159**, 221-245 (2002).

Hildyard, M. W., and R. P. Young. "Modelling Seismic Waves around Underground Openings," *PAGEOPH*, Special Issue on Induced Seismicity, **159**, 247-276 (2002).

Pettitt, W. S., C. Baker, R. P. Young, L-O. Dahlstrom and G. Ramqvist. "The Assessment of Damage around Critical Engineering Structures using Induced Seismicity," *PAGEOPH*, **159**(1-3), 179-195 (January 2002).

Šílený, J., I. Pšencík and R. P. Young. "Point-Source Inversion Neglecting a Nearby Free Surface: Simulation of the Underground Research Laboratory, Canada," *Geophys. J. Int.*, **146**(1), 171-180, doi:10.1046/j.0956-540x.2001.01433.x (2001).

Young, R. P., and C. Baker. "Microseismic Investigation of Rock Fracture and its Application in Rock and Petroleum Engineering," *ISRM News J.*, **7**(1), 19-27 (December 2001).

Young, R. P., and D. C. Collins. "Seismic Studies of Rock Fracture at the Underground Research Laboratory, Canada," *Int. J. Rock Mech. Min. Sci.*, Special Issue on Geophysics in Rock Mechanics, **38**, 787-799 (2001).

Collins, D. S., and R. P. Young. "Lithological Controls on Seismicity in Granitic Rocks," *Bull. Seism. Soc. Am.*, **90**, 709-723 (2000).

Hazzard, J. F., and R. P. Young. "Simulating Acoustic Emissions in Bonded-Particle Models of Rock (Technical Note)," *Int. J. Rock Mech. Min. Sci.*, **37**(5), 867-872 (2000).

- Hazzard J. F., R. P. Young and S. C. Maxwell. "Micromechanical Modelling of Cracking and Failure in Brittle Rocks," *J. Geophys. Res.*, **105**, 16,683-16,697 (2000).
- Holmes, G. M., S. Crampin and R. P. Young. "Controlled Sources for Shear-Wave Surveys in Mines," *Geophys. Prospect.*, **48**, 399-414 (2000).
- Holmes, G. M., S. Crampin and R. P. Young. "Seismic Anisotropy in Granite at the Underground Research Laboratory, Manitoba," *Geophys. Prospect.*, **48**, 415-436 (2000).
- Young, R. P., J. F. Hazzard and W. S. Pettitt. "Seismic and Micromechanical Studies of Rock Fracture," *Geophys. Res. Lett.*, **27**(12), 1767-1770 (2000).
- Debski, W., and R. P. Young. "Enhanced Velocity Tomography: Practical Method of Combining Velocity and Attenuation Parameters," *Geophys. Res. Lett.*, **26**(21), 3253-3256 (1999).
- Maxwell, S. C., R. P. Young, R. Bossu, A. Jupe and J. Dangerfield. "Microseismic Logging of Ekofisk," *JPT*, **51**, 78-79 (1999).
- Falls, S. D., and R. P. Young. "Acoustic Emission and Ultrasonic-Velocity Methods Used to Characterise the Excavation Disturbance Associated with Deep Tunnels in Hard Rock," *Tectonophysics*, **289**(1-3), 1-15 (April 1998).
- Maxwell, S. C., and R. P. Young. "Propagation Effects of an Underground Excavation," *Tectonophysics*, **289**(1-3), 17-30 (April 1998).
- Maxwell, S. C., R. P. Young and S. Read. "A Micro-velocity Tool to Assess the Excavation Damaged Zone," *Int. J. Rock Mech. Min. Sci.*, **35**(22), 235-247 (1998).
- Baker, C., and R. P. Young. "Evidence for Extensile Crack Initiation in Point Source Time-Dependent Moment Tensor Solutions," *Bull. Seism. Soc. Am.*, **87**(6), 1442-1453 (1997).
- Maxwell, S. C., and R. P. Young. (1996). "Seismic Imaging of Rock Mass Response to Excavation," *Int. J. Rock Mech. Min. Sci.*, **33**, 713-724 (1996).
- Young, R. P. "Application of Induced Seismicity to Radioactive Waste Management Programmes," *Geological Society, London, Engineering Geology Special Publication*, **11**, 223-230, doi:10.1144/GSL.ENG.1996.011.01.30 (1996).
- Chow, T. M., I. L. Meglis and R. P. Young. "Progressive Microcrack Development in Tests on Lac du Bonnet Granite - II. Ultrasonic Tomographic Imaging," *Int. J. Rock Mech. Min. Sci.*, **32**(8), 751-761 (1995).
- Maxwell, S. C., and R. P. Young. "A Controlled In-Situ Investigation of the Relationship Between Stress, Velocity and Induced Seismicity," *Geophys. Res. Lett.*, **22**(9), 1049-1052 (1995).
- Meglis, I. L., T. M. Chow and R. P. Young. "Progressive Microcrack Development in Tests on Lac du Bonnet Granite - I. Acoustic Emission Source Location and Velocity Measurements," *Int. J. Rock Mech. Min. Sci.*, **32**(8), 741-750 (1995).
- Meglis, I. L., R. E. Gagnon and R. P. Young. "Microcracking During Stress-Relief of Polycrystalline Ice Formed at High Pressure," *Geophys. Res. Lett.*, **22**(16), 2207-2210 (1995).

- Trifu, C.-I., T. I. Urbancic and R. P. Young. "Source Parameters of Mining-Induced Seismic Events: An Evaluation of Homogeneous and Inhomogeneous Faulting Models for Assessing Damage Potential," *PAGEOPH*, **145**(1), 3-27 (1995).
- Feustal, A. J., and R. P. Young. "Q<sub>B</sub> Estimates from Spectral Ratios and Multiple Lapse Time Window Analysis: Results from an Underground Research Laboratory in Granite," *Geophys. Res. Lett.*, **21**(14), 503-1506 (1994).
- McGaughey, W. J., R. P. Young, R. G. McCreary and S. C. Maxwell. "Mining Applications of Seismic Tomography," *CIM Bull.*, **87**(977), 49-56 (February 1994).
- Carlson, S. R., and R. P. Young. "Acoustic Emission and Ultrasonic Velocity Study of Excavation-Induced Microcrack Damage in the Mine-By Tunnel Wall at the Underground Research Laboratory, Pinawa, Manitoba," *Int. J. Rock Mech. Min. Sci.*, **30**(7), 901-909 (1993).
- Connors, C. F., T. I. Urbancic, W. F. Bawden and R. P. Young. "Constraining Numerical Models with Geomechanical Data and Microseismic Fault-Plane Solutions," *Int. J. Rock Mech. Min. Sci.*, **30**(7), 1371-1377 (1993).
- Holmes, G. M., S. Crampin and R. P. Young. "Preliminary Analysis of Shear-Wave Splitting in Granite at the Underground Research Laboratory, Manitoba," *Can. J. Explor. Geophys.*, **29**(1), 140-152 (1993).
- Jansen, D. P., S. C. Carlson, R. P. Young and D. A. Hutchins. "Ultrasonic Imaging and Acoustic Emission Monitoring of Thermally-Induced Microcracks in Lac du Bonnet Granite," *J. Geophysical Res.*, **98**(B12), 22,231-22,243 (1993).
- Jansen, D. P., D. A. Hutchins and R. P. Young. "Ultrasonic Tomography Using Scanned Contact Transducers," *J. Acoust. Soc. America*, **93**(6), 3242-3249 (1993).
- Maxwell, S. C., and R. P. Young. "A Comparison Between Controlled Source and Passive Source Seismic Velocity Images," *Bull. Seism. Soc. Am.*, **83**(6) 1813-1834 (1993).
- Maxwell, S. C., and R. P. Young. "Seismic Imaging of Blast Damage," *Int. J. Rock Mech. Min. Sci.*, **30**(7), 1435-1440 (1993).
- Vandamme, L., S. Talebi and R. P. Young. "Monitoring of a Hydraulic Fracture in a South Saskatchewan Oil Field," *J. Can. Pet. Technol.*, **33**(1), 27-34 (1993).
- Young, R. P. "Seismic Methods Applied to Rock Mechanics," *ISRM J.*, **1**(3), 4-18 (1993).
- Young, R. P., and C. D. Martin. "Potential Role of Acoustic Emission/Microseismicity Investigations in the Site Characterization and Performance Monitoring of Nuclear Waste Repositories," *Int. J. Rock Mech. Min. Sci.*, **30**(7), 797-803 (1993).
- Jansen, D. P., S. R. Carlson, R. P. Young and D.A. Hutchins. "Ultrasonic Imaging and Acoustic Emission Monitoring of Thermally Induced Microcracks in Lac du Bonnet Granite," *J. Geophys. Res.*, **98**(B12), 22,231-22,243 (1993).
- Maxwell, S. C., and R. P. Young. "Associations Between Temporal Velocity Changes and Induced Seismicity," *Geophys. Res. Lett.*, **20**(24), 2929-2932 (1993).

Trifu, C.-I., T. I. Urbancic and R. P. Young. "Non-Similar Frequency-Magnitude Distribution for  $M < 1$  Seismicity," *Geophys. Res. Lett.*, **20**(6), 427-430 (1993).

Urbancic, T. I., and R. P. Young. "Space-Time Variations in Source Parameters of Mining-Induced Seismic Events with  $M < 0$ ," *Bull. Seism. Soc. Am.*, **83**, 378-397 (1993).

Urbancic, T. I., C.-I. Trifu and R. P. Young. "Microseismicity Derived Fault-Planes and Their Relationship to Focal Mechanism, Stress Inversion, and Geologic Data," *Geophys. Res. Lett.*, **20**(22), 2475-2478 (1993).

Chow, T., D. A. Hutchins, M.D.C. Moles and R. P. Young. "Stress Dependence of the Acoustic Properties of Zr-2.5 wt% Nb Alloy," *Ultrasonics*, **31**(3), 183-192 (May 1992).

Falls, S., R. P. Young, S. Carlson and T. Chow. "Ultrasonic Tomography and Acoustic Emission in Hydraulically Fractured Lac du Bonnet Grey Granite," *J. Geophys. Res.*, **97** (B5), 6867-6884 (1992).

Feignier, B., and R. P. Young. "Moment Tensor Inversion of Induced Microseismic Events: Evidence of Non-Shear Failures in the  $-4 < M < -2$  Moment Magnitude Range," *Geophys. Res. Lett.*, **19**(14), 1503-1506 (1992).

Maxwell, S. C., and R. P. Young. "Sequential Velocity Imaging and Microseismic Monitoring of Mining-Induced Stress Change," *PAGEOPH*, **139**(314), 421-447 (1992).

Talebi, S., and R. P. Young. "Microseismic Monitoring in Highly Stressed Granite: Relation between Shaft-Wall Cracking and In Situ Stress," *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*, **29** (1), 25-34 (1992).

Urbancic, T. I., B. Feignier and R. P. Young. "Influence of source region properties on scaling relations for  $M < 0$  events," *PAGEOPH*, **139**(3-4), 721-739 (September 1992).

Urbancic, T. I., C.-I. Trifu, J. M. Long and R. P. Young. "Space-Time Correlations of b-Values with Stress Release," *PAGEOPH*, **139**(3-4), 449-462 (September 1992).

Young, R. P., and S. Maxwell. "Seismic Characterization of a Highly Stressed Rock Mass Using Tomographic Imaging and Induced Seismicity," *J. Geophys. Res.*, **97**(B9), 12,361-12,373 (1992).

Young, R. P., S. C. Maxwell, T. I. Urbancic and B. Feignier, B. "Mining-Induced Microseismicity: Monitoring and Applications of Imaging and Source Mechanism Techniques," *PAGEOPH*, **139**(3-4), 697-719 (September 1992).

Gibowicz, S. J., R. P. Young and S. Talebi. "Source Parameters of Seismic Events at the Underground Research Laboratory in Manitoba, Canada: Scaling Relations for Events with Moment Magnitude Smaller than -2," *Bull. Seism. Soc. Am.*, **81**(4), 1157-1182 (1991).

Hutchins, D. A., and R. P. Young. "Rock Property Assessment Using Laser-Generated Acoustic Waves," *Rev. Sci. Instrum.*, **62**(8), 1995-1998 (1991).

Jansen, D. P., D. A. Hutchins, P. J. Ungar and R. P. Young. "Acoustic Tomography in Solids Using a Bent Ray SIRT Algorithm," *J. Non-Destruct. Testing Eval.*, **6**(3), 131-148 (1991).

Gibowicz, S. J., and R. P. Young. "Seismic Hazard Estimates for the Proposed Site of the Sudbury Neutrino Observatory at Creighton Mines, Ontario, Canada," *Acta Geophys. Polonica*, **48**(3), 217-228 (1990).

Hutchins, D. A., D. Jansen, R. P. Young, C. Saleh and S. Kramer. "Imaging Defects with Laser Ultrasound," *J. Non-Destruct. Testing Eval.*, **5**(2-3), 85-96 (May 1990).

Falls, S. D., T. Chow, R. P. Young and D. A. Hutchins. "Acoustic Emission Analysis and Ultrasonic Velocity Imaging in the Study of Rock Failure," *J. Acoust. Emission*, Special Issue, Proceedings of the World Meeting on Acoustic Emission (March 20-23, 1989), **8**(1/2), S166-S169 (1989).

Hutchins, D.A., J. K. Hu, R. P. Young, R. Stoner, D. Jansen and Q. L. Zhang. "Ultrasonic Tomography of Metals Using Non-contact Transduction," *J. Acoust. Soc. Am.*, **85**(2), pp. 747-752 (February 1989).

Maxwell, S. C., R. P. Young and D. A. Hutchins. "Simultaneous Velocity Tomography and Source Location of Synthetic Acoustic Emission Data," *J. Acoust. Emission*, Special Issue, Proceedings of the World Meeting on Acoustic Emission (March 20-23, 1989), **8**(1/2), S38-S41 (1989).

Urbancic, T. I., S. Talebi and R. P. Young. "Focal Mechanism Determinations for a Sequence of Mining-Induced Seismic Events Recorded at a Hard Rock Mine," *J. Acoust. Emission*, Special Issue, Proceedings of the World Meeting on Acoustic Emission (March 20-23, 1989), **8**(1/2), S254-S257 (1989).

Young, R. P. "Fred Leighton Memorial Workshop on Mining-Induced Seismicity, August 30, 1987," *PAGEOPH*, Special Issue on Mining Induced Seismicity, Editorial, **129**(3-4) 285-293 (1989).

Young, R. P., D. A. Hutchins, J. McGaughey, J. Towers, D. Jansen and M. Bostock. "Geotomographic Imaging in the Study of Mining-Induced Seismicity," presented at the Fred Leighton Memorial Workshop on Mining-Induced Seismicity (Montreal, 1987); *PAGEOPH*, Special Issue on Mining Induced Seismicity, **129**(3-4), 571-596 (1989).

Young, R. P., D. A. Hutchins, S. Talebi, T. Chow, S. Falls, L. Farrell, D. Jansen, J. McGaughey, J. Towers and T. Urbancic. *Preprints of the Workshop on Fractured and Jointed Rock Masses (Lake Tahoe, June 1992)*. "Laboratory and Field Investigations of Rockburst Phenomena Using Concurrent Geotomographic Imaging and Microseismic Techniques," presented at the Fred Leighton Memorial Workshop on Mining-Induced Seismicity (Montreal, 1987); *PAGEOPH*, Special Issue on Mining Induced Seismicity, **129**(3-4), 647-659 (1989).

Young, R. P., S. Talebi, D. A. Hutchins and T. I. Urbancic. "Source Mechanism Studies of Mining-Induced Microseismic Events at Strathcona Mine, Sudbury, Canada," *PAGEOPH*, Special Issue on Mining Induced Seismicity, **129**(3-4), 455-474 (1989).

Young, R. P., and D. A. Hutchins. "Measuring Anisotropy Using Laser Generated Ultrasound," *Geophys J. Roy. Astron. Soc.*, **91**, 501-516 (1987).

Dyck, A. V., and R. P. Young. "Physical Characterisation of Rock Masses using Borehole Methods," *Geophysics*, **50**(12), 2530-2541 (1986).

Hutchins, D. A., K. Lundgren, R. P. Young and N. N. Hsu. "Laser Simulation of Buried AE Sources," *J. Acoust. Emission*, **5**(3), 29-33 (1986).

Young, R. P., and J. J. Hill. "Seismic Attenuation Spectra in Rock Mass Characterisation: A Case Study in Open-Pit Mining," *Geophysics*, **51**(2), 302-323 (1986).

Young, R. P., and D. A. Hutchins. "Rock Burst Studies Using Geotomographic Imaging and Acoustic/Microseismic Emission for Improved Source Location," *J. Acoust. Emission*, **5**(3), 34-39 (1986).

Hill, J. J., R. P. Young and K. M. Hall. "A Microcomputer Controlled Magnetometer Survey System," *J. Microcomput. Appl.*, **8**(3), 269-278. (1986).

Hill, J. J., and R. P. Young. "Microprocessors and Microcomputers: A Review and Implications for Geologists," *Q. J. Eng. Geol.*, **18**(4), 311-325 (1985).

Young, R. P. "Applications of Microcomputers in Engineering Geology: Introductory Note," *Q. J. Eng. Geol.*, **18**(4), 309-310 (1985).

Young, R. P., J. J. Hill and A. Green. "Vibration Monitoring in the Assessment of Blasting Efficiency: A New Microcomputer Controlled Radio Telemetric Instrumentation System", *Trans. Inst. Min. Metall., Section A, Mining Industry*, **93**, A202-A210 (October 1984).

Young, R. P., J. J. Hill, I. R. Bryan and R. Middleton. "Seismic Spectroscopy in Fracture Characterisation," *Q. J. Eng. Geol.*, **18**(4), 459-479 (1985).

Young, R. P., J. J. Hill, A. O. Green, R. N. Haigh and R. Middleton. "Microcomputer-Based Seismic Instrumentation Systems," *Q. J. Eng. Geol.*, **18**(4), 369-380 (1985).

Young, R. P. and J. J. Hill. "Seismic Remote Sensing of Rock Masses for the Optimisation of Excavation Efficiency," *I.E.E.E. Trans. Geosci. Remote Sensing*, **22**, 704-711 (1984).

Hill, J. J., R. P. Young and R. N. Haigh. "A Low-Cost Microcomputer-Based Seismic Processing System," *J. Software & Microsystems*, **2**(1), 19-25 (1983).

Hill, J. J., R. P. Young and R. N. Haigh. "A Microcomputer Seismic Processing System for Engineering Applications," *I.E.E.E. Trans. Industr. Electr.*, **30**(4), 340-346 (1983).

Hill, J. J., R. P. Young and D. D. Gabell. "The Design of a Microprocessor-based Instrument for the Seismic Interrogation of Rock Masses," *J. Microcomput. Appl.*, **5**, 183-194 (1982).

Young, R. P., and J. J. Hill. "Statistical Analysis of Seismic Spectral Signatures for Rock Quality Assessment," *Geoexploration*, **20**, 75-91 (1982).

Young, R. P., J. R. Coffey and J. J. Hill. "The Application of Spectral Analysis to Rock Quality Evaluation for Mapping Purposes," *Bull. Int. Assoc. Eng. Geol.*, **19**, 268-274 (1979).

Young, R. P., and R. J. Fowell. "Assessing Rock Discontinuities," *Int. J. Tunnels & Tunnelling*, **10**(5), 45-51 (1978).

### Refereed Conference/Symposia Proceedings

Reyes-Montes, J. M., B. Sainsbury, W. S. Pettitt, M. Pierce and R. P. Young. "Microseismic Tools for the Analysis of the Interaction Between Open Pit and Underground Developments," in *Caving 2010 (Proceedings of the Second International Symposium on Block and Sublevel Caving, Perth, Australia, April 2010)*, pp. 119-132. Y. Potvin, Ed. Perth: Australian Centre for Geomechanics (2010).

Reyes-Montes, J. M., W. S. Pettitt and R. P. Young. "Enhancement of Fracture Network Imaging from Microseismic Monitoring of Hydraulic Fracturing Treatments," Canadian Society of Exploration Geophysicists Microseismic Workshop, Calgary, November 2009.

Reyes-Montes, J. M., W. S. Pettitt, J. Haycox, B. Hemmings and R. P. Young. “Microseismic Analysis for the Quantification of Crack Interaction During Hydraulic Stimulation,” in *SEG Houston 2009 (Proceedings, SEG International Exposition and 79th Annual Meeting, Houston, October 2009)*, pp. 1652-1656.

Reyes-Montes, J. M., W. S. Pettitt, B. Hemmings, J. R. Haycox, J. R. Andrews and R. P. Young. “Application of Relative Location Techniques to Induced Microseismicity from Hydraulic Fracturing,” in *ATCE2009 (Proceedings, SPE Annual Technical Conference and Exhibition, New Orleans, 2009)*. Paper No. 124620.

Zhang, X., and R. P. Young. “Gaussian-Beam Polarization-Based Location Method by S-Wave for Hydraulic Fracturing Induced Seismicity,” Canadian Society of Exploration Geophysicists Microseismic Workshop, Calgary, November 2009.

Zhang, X., and R. P. Young. “Numerical Simulation of Seismicity Induced by Hydraulic Fracturing in Naturally Fractured Reservoirs,” in *ATCE2009 (Proceedings, SPE Annual Technical Conference and Exhibition, New Orleans, 2009)*. Paper No. 124690.

Zhang, X., and R. P. Young. “Three-Dimensional Dynamic Distinct Element Modeling Applied to Laboratory Simulation of Hydraulic Fracturing in Naturally Fractured Reservoirs,” in *SEG Houston 2009 (Proceedings, SEG International Exposition and 79th Annual Meeting, Houston, October 2009)*, Vol. 28, Paper No. 2697.

Nasseri, M.I.T., R. P. Young, F. Rezanezhad and S. H. Cho. “Application of 3D X-Ray CT Scanning Techniques to Evaluate Fracture Damage Zone in Anisotropic Granitic rock,” in *ROCKENG09 (Proceedings, 3rd CANUS Rock Mechanics Symposium, Toronto, May 2009)*, Paper No. 4050. M. Diederichs and G. Grasselli, Eds.

Reyes-Montes, J. M., W. S. Pettitt, J. R. Haycox, J. Andrews and R. P. Young. “Characterisation of Rock Mass Crack Damage Using Ultrasonic Surveys,” to be published in *Proceedings, EURADWASTE '08 — Community Policy & Research and Training Activities (Luxembourg, October 2008), European Commission*, EUR 24040, 2009, [http://cordis.europa.eu/fp7/euratom-fission/euradwaste2008\\_en.html](http://cordis.europa.eu/fp7/euratom-fission/euradwaste2008_en.html).

Reyes-Montes, J. M., W. S. Pettitt and R. P. Young. “Enhanced Spatial Resolution of Caving-Induced Microseismicity,” in *MASSMIN 2008 (5th International Conference on Mass Mining, Luleå, Sweden, June 2008)*, pp. 961-970. H. Schunnesson and E. Nordlund, Eds. Luleå: Division of Mining & Geotechnical Engineering, Luleå University of Technology, 2008.

Nasseri, M.H.B., A. Schubnel and R. P. Young. “The Evolution of Fracture Toughness and Permeability in Thermally Cracked Westerly Granite from Elastic Wave Velocities,” in *Rock Mechanics: Meeting Society's Challenges and Demands (1st Canada-U.S. Rock Mechanics Symposium, Vancouver, May 2007)*, Vol. 1, pp. 631-638. E. Eberhardt et al., Eds. London: Taylor & Francis Group, 2007.

Reyes-Montes, J. M., W. S. Pettitt and R. P. Young. “Validation of a Synthetic Rock Mass Model Using Excavation Induced Microseismicity,” in *Rock Mechanics: Meeting Society's Challenges and Demands (1st Canada-U.S. Rock Mechanics Symposium, Vancouver, May 2007)*, Vol. 1: *Fundamentals, New Technologies & New Ideas*, pp. 365-369. E. Eberhardt et al., Eds. London: Taylor & Francis Group, 2007.

Wanne, T. S., and R. P. Young. “Thermal Modeling Using Particle Clusters in PFC,” in *The Second Half Century of Rock Mechanics (11th Congress of the International Society for Rock Mechanics, Lisbon, July 2007)*, Vol. 1, pp. 495-497. L. Ribeiro e Sousa et al., Eds. London: Taylor & Francis Group, 2007.

Young, R. P., and B. D. Thompson. “Imaging Dynamic Rock Fracture with Acoustic Emission and X-Ray Tomography,” 11th Congress of International Society for Rock Mechanics, Lisbon, July 9-13, 2007.

Haycox, J. R., W. S. Pettitt, D. S. Collins and R. P. Young. “Validating 3-D Numerical Models of Rock Fracture with Laboratory and Field Scale Studies,” in *5th ICEG - Environmental Geotechnics: Opportunities, Challenges and Responsibilities for Environmental Geotechnics (Cardiff, UK, June 2006)*, pp. 477-484. H. R. Thomas, Ed. London: Thomas Telford, 2006.

Pettitt, W. S., J. R. Haycox and R. P. Young. “Monitoring the Rock Barrier around a Deep Repository Using Scaled Seismic Studies,” in *5th ICEG - Environmental Geotechnics: Opportunities, Challenges and Responsibilities for Environmental Geotechnics (Cardiff, UK, June 2006)*, pp.765-772. H.R. Thomas, Ed. London: Thomas Telford, 2006.

Pettitt, W. S., J. R. Haycox and R. P. Young. “Using Scaled Seismic Studies to Validate 3D Numerical Models of the Rock Barrier Around a Deep Repository,” in *Multiphysics Coupling and Long Term Behaviour in Rock Mechanics (ISRM Eurock 2006, Liège, Belgium, May 2006)*, pp. 389-394. A. Van Cotthem et al., Eds. London: Francis & Taylor, 2006.

Reyes-Montes, J. M., and R. P. Young. “Interpretation of Fracture Geometry from Excavation Induced Microseismic Events,” in *Multiphysics Coupling and Long Term Behaviour in Rock Mechanics (Proceedings, ISRM, Liege, Belgium, May 2006)*, pp. 205-210. A. Van Cotthem et al., Eds. Rotterdam: Balkema, 2006.

Wanne, T. S., and R. P. Young. “Bonded-Particle Model for Thermally Fractured Granitic Rock,” in *Multiphysics Coupling and Long Term Behaviour in Rock Mechanics (ISRM Eurock 2006, Liège, Belgium, May 2006)*, pp. 261-266. A. Van Cotthem et al., Eds. London: Francis & Taylor, 2006.

Baker, C., C. Balland, P. Bigarre, D.S. Collins. W. S. Pettitt and R. P. Young. “Geophysical Measurement of the Excavation Damaged Zone for Radioactive Waste Repositories — OMNIBUS,” in *Impact of the Excavation Disturbed or Damaged Zone (EDZ) on the Performance of Radioactive Waste Geological Repositories (Proceedings of the EU CLUSTER Conference, Luxembourg, November 2003)*. Brussels: European Commission, Directorate-General for Research, 2005.

Nasseri, B.M.H., B. Thompson, A. Schubnel and R. P. Young. “Acoustic Emission Monitoring of Mode I Fracture Toughness (CCNBD) Test in Lac du Bonnet Granite,” in *Alaska Rocks 2005 — Rock Mechanics for Energy, Mineral and Infrastructure Development in the Northern Regions (University of Alaska-Anchorage, June 2005)*. Paper No. ARMA/USRMS 05-741. G. Chen et al., Eds. ARMA, University of Alaska-Fairbanks, 2005.

Vardakos, S., and M. Gutierrez. “Distinct Element Modeling of Shimizu Tunnel #3, Tomei II Highway, Japan,” in *Alaska Rocks 2005 — Rock Mechanics for Energy, Mineral and Infrastructure Development in the Northern Regions (University of Alaska-Anchorage, June 2005)*. Paper No. ARMA/USRMS 05-710. G. Chen et al., Eds. ARMA, University of Alaska-Fairbanks, 2005.

Young, R. P. “Geophysical Imaging of Rock Fracture (Invited Paper),” presented at EURO-Conference 2004 on Rock Physics and Geomechanics Scaling Laws in Space and Time (Potsdam, September 2004).

Young, R. P., D. S. Collins, J. Hazzard, A. Heath, C. Baker, W. S. Pettitt, D. Billaux, P. Cundall, D. Potyondy, F. Dedecker and C. Svemar. “An Innovative 3-D Numerical Modelling Procedure for Simulating Repository-Scale Excavations in Rock — SAFETI,” in *Impact of the Excavation Disturbed or Damaged Zone (EDZ) on the Performance of Radioactive Waste Geological Repositories (Proceedings of the EU CLUSTER Conference, Luxembourg, November 2003)*. Brussels: European Commission, Directorate-General for Research, 2005.

Collins, D. S., and R. P. Young. “Interpreting the Amount and Orientation of Microcracks in the Excavation Disturbed Zone Using Velocity, Modulus and Crack Density Values,” in *Proceedings, 2nd International Workshop on Excavation Damage*. Atomic Energy Canada Press, 2004.

Pettitt, W. S., D. S. Collins, M. W. Hildyard, R. P. Young, C. Balland and P. Bigarre. “An Ultrasonic Tool for Examining the Excavation Damaged Zone around Radioactive Waste Repositories — The OMNIBUS Project,” in *EURADWASTE '04 (Conference Proceedings — Radioactive Waste Management Community Policy and Research Initiatives, Luxembourg, March 2004)*, pp. 511-521. European Commission, 2004.

Young, R. P., D. S. Collins, J. Hazzard, A. Heath, W. S. Pettitt, C. Baker, D. Billaux, P. Cundall, D. Potyondy, F. Dedecker, C. Svemar and P. Lebon, “An Innovative 3-D Numerical Modelling Procedure for Simulating Repository-Scale Excavations in Rock — SAFETI,” presented at the Euradwaste'04 Conference on Radioactive Waste Management Community Policy and Research Initiatives (Luxembourg, March 2004), Poster P37; in *Programme and Abstracts from the Sixth European Commission Conference on the Management and Disposal of Radioactive Waste (EURADWASTE '04), Luxembourg, March-April 2004*, Poster P37.

Young, R. P., D. S. Collins, W. S. Pettitt and J. F. Hazzard. “Imaging and Visualization of Fractures in Rock Engineering,” in *Contribution of Rock Mechanics to the New Century (ISRM International Symposium: Third Asian Rock Mechanics Symposium, Kyoto, November-December 2004)*, Keynote Paper, pp. 3-12. Y. Ohnishi and K. Aoki, Eds. Rotterdam: Millpress, 2004.

Baker, C., and R. P. Young. “Applications of Ultrasonic Techniques to in-Situ Investigation of Critical Structures in Rock and Concrete,” in *NARMS-TAC 2002: Mining and Tunnelling Innovation and Opportunity*, Vol. 1, pp. 425-432. R. Hammah et al., Eds. Toronto: University of Toronto Press, 2002.

Chandler, N., R. Read, D. Potyondy, R. P. Young and J. Hazzard. “Computing Brittle Rock Fracture and Excavation Stability Using the Particle Flow Code,” in *Proceedings, 2nd Canadian Specialty Conference on Computer Applications in Geotechnique (Winnipeg, April 2002)*, pp. 104-111. Alliston, Ontario, Canada: Canadian Geotechnical Society. 2002.

Collins, D.S., and R. P. Young. “Interpreting the Amount and Orientation of Microcracks in the Excavation Disturbed Zone Using Velocity, Modulus and Crack Density Values,” in *Proceedings, 5th Workshop of the ISRM Commission on the Application of Geophysics in Rock Engineering (Toronto, July 2002)*. R. P. Young, Ed.

Hazzard, J. F., and R. P. Young. “3D Numerical Modelling of Acoustic Emissions,” in *Proceedings of the 5<sup>th</sup> International Workshop on the Application of Geophysics to Rock Engineering*, pp. 40-47. Liverpool: University of Liverpool Press, 2002.

Hazzard, J. F., R. P. Young and S. J. Oates. “Numerical Modeling of Seismicity Induced by Fluid Injection in a Fractured Reservoir,” in *NARMS-TAC 2002: Mining and Tunnelling Innovation and Opportunity*, Vol. 2, pp. 1023-1030. R. Hammah et al., Eds. Toronto: University of Toronto Press, 2002.

Pettitt, W. P., C. Baker and R. P. Young. "Using Acoustic Emission and Ultrasonic Techniques for Assessment of Damage around Critical Engineering Structures," in *NARMS-TAC 2002: Mining and Tunnelling Innovation and Opportunity*, Vol. 2, pp. 1161-1169. R. Hammah et al., Eds. Toronto: University of Toronto Press, 2002.

Young, R. P. "Seismic and Micromechanical Investigation of Rock Damage," NARMS-TAC 2002: Mining and Tunnelling Innovation and Opportunity, Toronto, July 2002.

Hazzard, J. F., and R. P. Young. "Seismic Validation of Micromechanical Models," in *Rock Mechanics in the National Interest (38th U.S. Rock Mechanics Symposium, Washington, D.C., July 2001)*, Vol. 2, pp. 1029-1034. Rotterdam: Balkema, 2001.

Meglis, I. L., T. Chow and R. P. Young. "Assessing Microcrack Damage around a Tunnel at the Underground Research Laboratory Using Ultrasonic Velocity Tomography," in *Rock Mechanics in the National Interest (38th U.S. Rock Mechanics Symposium, Washington, D.C., July 2001)*, Vol. 2, pp. 1029-1034. Rotterdam: Balkema, 2001.

Chandler, N., R. S. Read, P. Cundall, D. Potyondy, R. P. Young, J. Lau and G. Simmons. "An Integrated Approach to Excavation Design — A Project Within Canada's Used Fuel Disposal Program," in *Pacific Rocks 2000: Rock Around the Rim (4th North American Rock Mechanics Symposium, Seattle, July-August 2000)*, pp. 1271-1278, J. Girard et al., Ed. Rotterdam: Balkema, 2000.

Young, R. P. "Acoustic Remote Monitoring of Rock and Concrete Structures for Nuclear Waste Repositories," in *Retrievability of High Level Waste and Spent Nuclear Fuel (Proceedings of the International Seminar, Saltsjöbaden, Sweden, October 1999)*, IAEA-TECDOC-1187, pp. 165-178. Vienna: International Atomic Energy Agency, December 2000.

Young, R. P., and W. S. Pettitt. "Investigating the Stability of Engineered Structures Using Acoustic Validation of Numerical Models," in *Trends in Rock Mechanics (Geo-Denver 2000, August 2000)*, Keynote Lecture, pp. 1-15. Geotechnical Special Publication No. 102, J. F. Labuz et al., Eds. Reston, Virginia: ASCE, 2000.

Cabrera, J., P. Volant, C. Baker, W. S. Pettitt and R. P. Young. "Structural and Geophysical Investigations in the EDZ (Excavation Disturbed Zone) in Indurated Argillaceous Media: The Tunnel and the Galleries of the IPSN Tournemire Site, France," in *Rock Mechanics for Industry (37th U.S. Rock Mechanics Symposium, Vail, Colorado, June 1999)*, Vol. 2, pp. 957-964. B. Amadei et al., Eds. Rotterdam: Balkema, 1999.

Young, R. P., and D. S. Collins. "Monitoring an Experimental Tunnel Seal in Granite using Acoustic Emission and Ultrasonic Velocity," in *Rock Mechanics for Industry (37th U.S. Rock Mechanics Symposium, Vail, Colorado, June 1999)*, Vol. 2, pp. 869-876. B. Amadei et al., Eds. Rotterdam: Balkema, 1999.

Hazzard, J. F., S. Maxwell and R. P. Young. "Micromechanical Modelling of Acoustic Emissions," in *EUROCK 98 (SPE/ISRM Conference on Rock Mechanics in Petroleum Engineering, Trondheim, July 1998)*, Vol. 1, pp. 519-526. Richardson, Texas: SPE, 1998.

Maxwell, S. C., R. P. Young, R. Bossu, A. Jupe and J. Dangerfield. "Microseismic Logging of the Ekofisk Reservoir," in *EUROCK '98 (SPE/ISRM Conference on Rock Mechanics in Petroleum Engineering, Trondheim, Norway, July 1998)*, Vol. 1, pp. 387-393. Richardson, Texas: SPE, 1998.

Pettit, W. S., R. P. Young and J. R. Marsden. "Investigating the Mechanics of Microcrack Damage Induced Under True-Triaxial Unloading," in *EUROCK '98 (SPE/ISRM Conference on Rock Mechanics in Petroleum Engineering, Trondheim, July 1998)*, Vol. 2, pp. 509-517. Richardson, Texas: SPE, 1998.

Maxwell, S. C., R. Bossu and R. P. Young and J. Dangerfield. "Processing of Induced Microseismicity Recorded in the Ekofisk Reservoir," International Meeting of the Society of Exploration Geophysicists, 1998; *SEG Expanded Abstracts, 17*, doi:10.1190/1.1820635 (1998).

Maxwell, S. C., and R. P. Young. "Assessing Induced Fracturing around Underground Excavations Using Velocity Imaging and Induced Seismicity," in *Rockbursts and Seismicity in Mines (Proceedings, 4th International Symposium, Krakow, August 1997)*, pp. 179-184. S. J. Gibowicz and S. Lasocki, Eds. Rotterdam: Balkema, 1997.

Šílený J., V. Vavryčuk, C. Baker and R. P. Young. "Determination of Source Parameters from Noisy Waveforms: Inversion of Displacement Seismograms versus Accelerograms," in *Rockbursts and Seismicity in Mines (Proceedings, 4th International Symposium, Krakow, August 1997)*, pp. 95-100. S. J. Gibowicz and S. Lasocki, Eds. Rotterdam: Balkema, 1997.

Falls, S. D., and R. P. Young. "Comparison of Excavation Disturbance Around Deep Tunnels in Hard Rock Using Acoustic Emission and Ultrasonic Velocity Methods," in *Designing the Excavation Disturbed Zone for a Nuclear Repository in Hard Rock (Excavation Disturbed Zone Workshop, Winnipeg, September 1996)*, pp. 77-86. J. B. Martino and C. D. Martin, Eds. Toronto: Canadian Nuclear Society, 1996.

Falls S. D., and R. P. Young. "Examination of the Excavation Disturbed Zone in the Swedish ZEDEx Tunnel Using Acoustic Emission and Ultrasonic Velocity Measurements in Prediction and Performance," in *Prediction and Performance in Rock Mechanics & Rock Engineering (EUROCK '96, Turin, September 1996)*, Vol. 2, pp. 1337-1344. G. Barla, Ed. Rotterdam: Balkema, 1996.

Maxwell, S. C., R. P. Young, C. Baker, D. S. Collins and D. Martin. "Mapping the Excavation Disturbed Zone around the Mine-by Tunnel Using Induced Seismicity and Velocity Imaging," *Designing the Excavation Disturbed Zone for a Nuclear Repository in Hard Rock (Excavation Disturbed Zone Workshop, Winnipeg, September 1996)*, pp. 67-76. J. B. Martino and C. D. Martin, Eds. Toronto: Canadian Nuclear Society, 1996.

Martin, C. D., R. P. Young and D. S. Collins. "Monitoring Progressive Failure around a Tunnel in Massive Granite," in *Proceedings, 8th International Congress on Rock Mechanics (Tokyo, September 1995)*, Vol. 2, pp. 627-634. T. Fujii, Ed. Rotterdam: Balkema, 1995.

Urbancic, T. I., and R. P. Young. "Structural Characterization of Highly Stressed Rock Masses Using Microseismic Fault Plane Solutions," *Preprints of the Workshop on Fractured and Jointed Rock Masses (Lake Tahoe, June 1992)*; in *Fractured and Jointed Rock Masses (Proceedings, Lake Tahoe, June 1992)*, pp. 237-243. Rotterdam: Balkema, 1995

Urbancic, T. I., and R. P. Young. "Structural Characterization of Highly Stressed Rock Masses Using Microseismic Fault-plane Solutions," in *Fractured and Jointed Rock Masses*, pp. 237-244. L. R. Myer et al., Eds. Rotterdam: Rotterdam, 1995.

Maxwell, S. C., and R. P. Young. "Applications of Seismic Tomography to Induced Seismicity Investigations," in *Rock Mechanics in Petroleum Engineering (Eurock '94, Delft, August 1994)*, pp. 597-604. H. Roest and C. Kenter, Eds. Rotterdam: Balkema, 1994.

Young, R. P., and S. C. Maxwell. "Seismic Imaging in Rockburst Investigations (Keynote Address)," in *Proceedings, 1994 ISRM International Symposium/IV Congreso Sudamericano de Mecanica de Rocas (Santiago, May 1994)*, pp. 25-41. Santiago: Editec, 1994.

Eneva, M., and R. P. Young. "Evaluation of Spatial Patterns in the Distribution of Seismic Activity in Mines: A Case Study of Creighton Mine, Northern Ontario (Canada)," in *Rockbursts and Seismicity in Mines (3rd International Symposium, Kingston, Ontario, Canada, August 1993)*, pp. 175-180. R. P. Young, Ed. Rotterdam: Balkema, 1993.

Feignier, B., and R. P. Young. "Failure Mechanisms of Microseismic Events Generated by a Breakout Development around an Underground Opening," in *Rockbursts and Seismicity in Mines (3rd International Symposium, Kingston, Ontario, Canada, August 1993)*, pp. 181-186. R. P. Young, Ed. Rotterdam: Balkema, 1993.

Feustel, A., T. I. Urbancic and R. P. Young. "Estimates of Q Using the Spectral Decay Technique for Events with  $M < -1$ ," in *Rockbursts and Seismicity in Mines (3rd International Symposium, Kingston, Ontario, Canada, August 1993)*, pp. 227-342. R. P. Young, Ed. Rotterdam: Balkema, 1993.

Martin, C. D., and R. P. Young. "The Effect of Excavation-Induced Seismicity on the Strength of Lac du Bonnet Granite," in *Rockbursts and Seismicity in Mines (3rd International Symposium, Kingston, Ontario, Canada, August 1993)*, pp. 367-371. R. P. Young, Ed. Rotterdam: Balkema, 1993.

Maxwell, S. C., and R. P. Young. "Stress Change Monitoring Using Induced Microseismicity for Sequential Passive Velocity Imaging," in *Rockbursts and Seismicity in Mines (3rd International Symposium, Kingston, Ontario, Canada, August 1993)*, pp. 373-377. R. P. Young, Ed. Rotterdam: Balkema, 1993.

Talebi, S., and R. P. Young. "Design of a Microseismic Monitoring System for the Investigation of Tunnel Excavation Damage," in *Rockbursts and Seismicity in Mines (3rd International Symposium, Kingston, Ontario, Canada, August 1993)*, pp. 423-428. R. P. Young, Ed. Rotterdam: Balkema, 1993.

Urbancic, T. I., and R. P. Young. "Stress Release Estimates, Scaling Behaviour and Source Complexities of Microseismic Events," in *Rockbursts and Seismicity in Mines (3rd International Symposium, Kingston, Ontario, Canada, August 1993)*, pp. 255-260. R. P. Young, Ed. Rotterdam: Balkema, 1993.

Feignier, B., and R. P. Young. "Moment Tensor Inversion of Induced Microseismic Events: Source Mechanism Investigations in the  $-4 < M < -1$  Moment Magnitude Range," presented at the AGU 1991 Fall Meeting, San Francisco, December 1991; *Geophys. Res. Lett.*, **19**(14), 1503-1506 (1992).

Feignier, B., R. P. Young and S. Talebi. "Non-Double-Couple Source Mechanisms: Analysis of Excavation-Induced Microseismic Events Using Moment Tensor Inversion," 33rd U.S. Rock Mechanics Symposium, Santa Fe, June 1992.

Jansen, D. P., T. Chow, D. A. Hutchins and R. P. Young. "Ultrasonic Tomographic Imaging of Anisotropic Solids," in *Acoustical Imaging (Proceedings of the International Symposium, Bochum, Germany, April 1991)*, Vol. 19, pp. 59-63. H. Ermert and H.-P. Harjes, Eds. New York: Plenum Press, 1992.

Maxwell, S., and R. P. Young. "Integration of Sequential Seismic Imaging and Seismicity," 33rd U.S. Rock Mechanics Symposium, Santa Fe, June 1992.

Maxwell, S., and R. P. Young. “3D Seismic Velocity Imaging Using Microseismic Systems at Strathcona Mine and Mines Gaspe,” in *Proceedings, 94th AGM*, pp. 26-35. Montreal: CIM, 1992.

Talebi, S., S. R. Carlson and R. P. Young. “Source Mechanisms of Microseismic Events Induced by Fluid Injection in Laboratory and Field Experiments,” 33rd U.S. Rock Mechanics Symposium, Santa Fe, June 1992.

Urbancic, T. I., S. Bird, R. P. Young and W. Bawden. “Microseismic Source Parameters and Their Use in Characterizing Rock Mass Behaviour: Considerations from Strathcona Mine,” in *Proceedings, 94th AGM*, pp. 36-47. Montreal: CIM, 1992.

Urbancic, T. I., B. Feigner, S. Talebi and R. P. Young. “Breakdown in Scaling Laws: Site or Source Effect,” in *33rd U.S. Symposium, Santa Fe, June 1992*.

Young, R. P. “Correlations between Seismic Velocity and Induced Seismicity in Underground Mines (Invited Paper),” in *Rock Mechanics (33rd U.S. Symposium, Santa Fe, June 1992)*, pp. 1113-1122. J. R. Tillerson and W. R. Wawersik, Eds. Rotterdam: Balkema, 1992.

Young, R. P. “Mining-Induced Seismicity Investigations Using Seismic Imaging and Source Mechanism Techniques,” Keynote Address” 22nd Symposium on Mining-Induced Seismicity, Liblice, Czech Republic, September 1992.

Bawden, W., and R. P. Young. “Geomechanical Analysis in Mine Design: An Integrated Approach Using Microseismicity, Numerical Modelling and Structural Geology,” in *Rock Mechanics as a Multidisciplinary Science (32nd U.S. Symposium, University of Oklahoma, June 1991)*, 771-780. J.-C. Roegiers, Ed. Rotterdam: Balkema, 1991.

Jansen, D. P., D. A. Hutchins and R. P. Young. “Acoustic Imaging of Thermally Fractured Rock,” in *Ultrasonics Symposium, 1991 (Proceedings, IEEE, Orlando, December 1991)*, Vol. 1, pp. 695-698. IEEE, doi:10.1109/ULTSYM.1991.234101, 1991.

Kazakidis, V. N., W. F. Bawden and R. P. Young. P. “Linkage of Geomechanical Mapping, Numerical Modelling and Microseismic Monitoring for Mine Design — A Case Study,” in *Proceedings, 7th International Congress on Rock Mechanics (Aachen, Germany, September 1991)*, Vol. 2, pp. 1143-1149. W. Wittke, Ed. Rotterdam: Balkema, 1991.

Talebi, S., L. Vandamme, W. J. McGaughey and R. P. Young. “Microseismic Mapping of a Hydraulic Fracture,” in *Rock Mechanics as a Multidisciplinary Science (32nd U.S. Symposium, University of Oklahoma, June 1991)*, 461-470. J.-C. Roegiers, Ed. Rotterdam: Balkema, 1991.

Chow, T., D. A. Hutchins, S. D. Falls and R. P. Young. “Ultrasonic Attenuation Tomography in Disks Under Load,” in *Ultrasonics Symposium, 1990 (Proceedings, IEEE, Honolulu, December 1990)*, Vol. 3, pp. 1241-1244. IEEE, doi: 10.1109/ULTSYM.1990.171560, 1990.

Jansen, D. P., T. Chow, S., Falls, D. A. Hutchins and R. P. Young. “Ultrasonic Difference Tomography,” in *Ultrasonics International '89 (Madrid, July 1989)*. London: Butterworth-Heinemann, 1990.

Jansen, D. P., D. A. Hutchins and R. P. Young. “Ultrasonic Tomography Using Scanned Contact Transducers,” in *Ultrasonics Symposium, 1990 (Proceedings, IEEE, Honolulu, December 1990)*, Vol. 2, pp. 871-874. 695-698. IEEE, doi: 10.1109/ULTSYM.1990.171488, 1990.

McCreary, R. G., and R. P. Young. "Tomographic Delineation of a Fault Zone: A Case Study Demonstrating the Effects of Limited Ray Coverage," Meeting of the Society of Exploration Geophysicists, San Francisco, September 1990; *SEG Expanded Abstracts*, **9**(1) 274-277 (1990).

McGaughey, W. J., and R. P. Young. "A Comparison of ART, SIRT, Least Squares and SVD Two-Dimensional Tomographic Inversion of Field Data," Society of Exploration Geophysicists (San Francisco, September 1990); *SEG Expanded Abstracts*, **9**(1), 74-77 (1990).

Talebi, S., and R. P. Young. "Characterizing Microseismicity Associated with Stope Development," in *Rockbursts and Seismicity in Mines (2nd International Symposium, Minneapolis, June 1988)*, pp. 189-194. C. Fairhurst, Ed. Rotterdam: Balkema, 1990.

Talebi, S., and R. P. Young. "Failure Mechanism of Crack Propagations Induced by Shaft Excavation at AECL's Underground Research Laboratory," in *Rock at Great Depth (ISRM/SPE International Symposium, Pau, France, August 1989)*, Vol.3, pp. 1455-1461. V. Maury and D. Fourmaintraux, Eds. Rotterdam: Balkema, 1990.

Young, R. P. "Geotomography in the Study of Rockbursts and Seismicity in Mines (Keynote Address)," in *Rockbursts and Seismicity in Mines (2nd International Symposium, Minneapolis, June 1988)*, pp. 29-37. C. Fairhurst, Ed. Rotterdam: Balkema, 1990.

Young, R. P. "Location of High Stress Zones in Sill Pillars Using Seismic Tomography," in *Proceedings, CANMET Conference on Stresses in Underground Structures (Ottawa, October 1990)*, pp. 201-206.

Young, R. P., D. A. Hutchins and W. J. McGaughey. "Seismic Imaging Ahead of Mining in Rockburst Prone Ground," in *Rockbursts and Seismicity in Mines (2nd International Symposium, Minneapolis, June 1988)*, pp. 231-236. C. Fairhurst, Ed. Rotterdam: Balkema, 1990.

Falls, S. D., T. Chow, R. P. Young and D. A. Hutchins. "Acoustic Emission Analyses and Tomographic Velocity Imaging in the Study of Failure in Brazilian Disc Tests," in *Rock Mechanics as a Guide for Efficient Utilization of Natural Resources (30th U.S. Symposium, West Virginia University, June 1989)*, pp. 647-654. K. Wahab, Ed. Rotterdam: Balkema, 1989.

McGaughey, W. J., and R. P. Young. "Geotechnical Mapping by Seismic Imaging in Underground Mines," in *Rock Mechanics as a Guide for Efficient Utilization of Natural Resources (30th U.S. Symposium, West Virginia University, June 1989)*, pp. 343-350. K. Wahab, Ed. Rotterdam: Balkema, 1989.

Young, R. P. "Seismic Propagation in Rock Masses: Implications for Acoustic Emission/Microseismic Activity," in *Acoustic Emission/Microseismic Activity in Geologic Structures and Materials (Proceedings, 4th Conference, Pennsylvania State University, October 1985)*, pp. 531-550. Uetikon-Zurich, Switzerland: Trans Tech Publications, 1989.

Young, R. P., S. Talebi and R. McCreary. "Seismic Imaging in the Evaluation of Surface Crown Pillar Rock Masses," in *Surface Crown Pillar Evaluation for Active and Abandoned Metal Mines: Proceedings of the International Conference (Timmins, Ontario, Canada, November 1989)*, pp. 57-66. M. C. Betournay, Ed. Ottawa: Energy, Mines and Resources Canada, 1989.

Young, R. P., and S. Talebi. "Seismological Techniques in the Study of Mining-Induced Rock Mass Instability," in *Rock Engineering for Underground Excavations (15th Canadian Rock Mechanics Symposium, Toronto, October 1988)*, pp. 221-233. J. H. Curran, Ed. Toronto: University of Toronto, 1988.

Hutchins, D. A., R. P. Young and D. Jansen. "Acoustical Tomography Using Sparse Data and Irregular Geometries," Acoustical Imaging '88, Sendai, Japan.

Hutchins, D. A., R. P. Young, R. Stoner, J. K. Hu, D. J. Jansen and Q. L. Zhang. "Non-Contact Ultrasonic Reflection Tomography," in *Proceedings, IEEE Ultrasonics Symposium (Denver, (October 1987))*, pp. 1037-1039. New York: IEEE, 1987.

Young, R. P., D. A. Hutchins, M. Bostock and P. Mottahed. "Geotomographic Imaging of Collapse/Solution Structures in Potash Mines Using Seismic Methods," in *Rock Mechanics (Proceedings, 28th U.S. Symposium, Tucson, June-July 1987)*, pp. 19-27. Rotterdam: Balkema., 1987.

Young, R. P., D. A. Hutchins, W. J. McGaughey, T. Urbancic, S. Falls and J. Towers. "Concurrent Seismic Tomographic Imaging and Acoustic Emission Techniques: A New Approach to Rock Burst Investigations," in *Proceedings, 6th International Congress on Rock Mechanics (Montreal, 1987)*, Vol. 2, pp. 1333-1338. G. Herget and S. Vongpaisal, Eds. Rotterdam: Balkema, 1987.

McGaughey, W. J., R. P. Young and D. V. Woods. "Microcomputer Processing of Shallow Seismic Data: A Case Study," 56th Annual Int. Conf., Society of Exploration Geophysicists, Houston, 1986; *SEG Expanded Abstracts*, 5(1), 370-373, doi:10.1190/1.1893082 (1986).

Young, R. P., and H. I. Almossawi. "Attenuation of Ultrasonic Waves in Porous Media as a Function of Grain Size/Permeability and Differential Stress," 55th Annual Int. Conf. Society of Exploration Geophysicists, Washington, 1985; *SEG Expanded Abstracts*, 4(1), 96-99 (1985).

Young, R. P., and J. J. Hill. "Seismic Characterization of Rock Masses Before and After Mine Blasting" in *Research and Engineering Applications in Rock Masses (26th U.S. Symposium on Rock Mechanics)*, pp. 1151-1158. E. Ashworth, Ed. Boston: Balkema, 1985.

Green, A. D., J. J. Hill and R. P. Young. "A Remote, Multistation, Multiprocessing, Vibration Monitoring System," in *Proc., IEEE Conf. on Computers, Systems and Signal Processing (Bangalore, India, 1984)*, Vol. 3, pp. 1692-1696.

Hill, J. J., R. P. Young, R. Middleton and R. N. Haigh. "GEOSEIS Merlin: A Portable Microcomputer-based Seismic Processing System for On-site Use," in *Proc., IEEE Conf. on Computers, Systems and Signal Processing (Bangalore, India, 1984)*, Vol. 3, pp.1335-1339.

Young, R. P., and J. J. Hill . "Monitoring Fragmentation Efficiency of Mine Blasting Using Seismic Spectroscopy," 54th Annual Meeting, Society of Exploration Geophysicists, Atlanta, 1984; *SEG Expanded Abstracts*, 3(1), 319-322 (1984).

Hill, J. J., and R. P. Young. "Microcomputer Enhancement of Geophysical Instrumentation," in *Proc., IEEE Int. Conf. on Computer Applications (COMPCON 1983, Washington, 1983)*, pp. 364-372.

Young, R. P., and J. J. Hill. "Seismic Remote Sensing of Rock Masses for the Optimization of Excavation Efficiency," in *Proc., Int. IEEE (San Francisco, 1983)*, FP2, 6.1-6.7.

Hill, J. J., R. P. Young and R. N. Haigh. "A Microcomputer Seismic Processing System for Engineering Applications," in *Proc., Int. IEEE Conf. on Applications of Mini and Microcomputers (Palo Alto, 1982)*, pp.119-125.

Young, R. P., and J. J. Hill. "Seismic Attenuation Spectra: Their Use in Rock Quality Evaluation for Opencast Mining," 52nd Annual Meeting, Society of Exploration Geophysicists, Dallas, 1982; *SEG Expanded Abstracts, I*, 421-423, doi:10.1190/1.1827069 (1982).

Hill, J. J., R. P. Young and D. D. Gabell. "A Microcomputer-based Instrument for the Analysis and Interpretation of Geophysical Data in Opencast Mining," in *Proc., Int. IEEE Conf. on Applications of Mini and Microcomputers (San Francisco, 1981)*, pp. 274-280.

Young, R. P., and J. J. Hill. "Multivariate Analysis of Seismic Spectral Data for Rock Mass Characterization in Opencast Mining," in *Proc., 2nd IEEE Int. Symp. on Computer-Aided Seismic Analysis and Discrimination (Massachusetts, 1981)*, pp.110-117.

Young, R. P. "A Computer-Based System for the Storage, Retrieval and Analysis of Geophysical and Geotechnical Data," 2nd Conf. on Computer Applications in Geology; Geological Society of London, London, U.K., Special Publication No. 14, pp. 32-55, 1980.

### Books

Young, R. P., Ed. *Proceedings, Workshop of the ISRM Commission on the Application of Geophysics in Rock Engineering (Toronto, July 2002)*.

Young, R. P., and L. J. Pyrak-Nolte, Eds. *Proceedings of the 5<sup>th</sup> International Workshop on the Application of Geophysics to Rock Engineering*. Liverpool: University of Liverpool Press, 2002.

Young, R. P., Ed. *Rockbursts and Seismicity in Mines (3rd International Symposium, Kingston, Ontario, Canada, August 1993)*. Rotterdam: Balkema, 1993.

### Book Chapters

Maxwell, S. C., and R. P. Young. "Seismic Velocity Inversion from Microseismic Data in Maxwell & Young," in *Seismic Monitoring in Mines*, pp.108-118. A. J. Mendecki, Ed. London: Chapman & Hall, 1997.

Young, R. P., and J. Franklin. "Seismic Events," in *Mine Monitoring Manual*, Special Volume 42, Ch. 4.2. J. Franklin, Ed. Canadian Institute of Mining and Metallurgy, 1990.

Hutchins, D. A., R. P. Young and J. Unger. "Laser Generated Ultrasonic Waves for the Investigation of Porous Solids," in *Ultrasonic Methods in Evaluation of Inhomogeneous Materials, NATO ASI Series E, Applied Sciences*, No. 126, pp. 353-365. Dordrecht, Netherlands: M. Nijhoff, 1987.

Young, R. P., and J. J. Hill. "Statistical Analysis of Seismic Spectral Signatures for Rock Quality Assessment," in *Seismic Signal Analysis and Discrimination*, pp. 75-91. C. H. Chen, Ed. Amsterdam: Elsevier, 1982