

Randall R Parrish BA MSc PhD

Professor of Isotope Geology, University of Leicester

Head NERC Isotope Geosciences Laboratories, British Geological Survey

Publications:

~230 Refereed Journal Publications 1976-2011

Full List of Publications

Submitted/In review manuscripts

2011

Henderson, A., Najman, Y, Parrish, RR, Mark, DF, and Foster, GL. (accepted) Constraints to the timing of India-Eurasia collision; a re-evaluation of evidence from the Indus Basin sedimentary rocks. *Earth Science Reviews*.

Najman Y, Appel E, Boudagher-Fadel M, Bown P, Carter A, Garzanti E, Godin L, Han J, Oliver G, Parrish RR, and Vezzoli G. (accepted) Is a reassessment of the timing of India-Asia collision required? *J Geophysical Research*.

Chambers, J., R. Parrish, T. Argles, N. Harris, and M. Horstwood (2011), A short duration pulse of ductile normal shear on the outer South Tibetan detachment in Bhutan: alternating channel flow and critical taper mechanics of the eastern Himalaya, *Tectonics*, doi:10.1029/2010TC002784, in press.

Foster, GL, Lunt, DJ, Parrish, RR. 2010, Mountain uplift and glaciation of North America – A sensitivity study, *Climates of the Past*, 6, 1–10, 2010. doi:10.5194/cp-6-1-2010

KING, JA, HARRIS, N., ARGYLES, T., PARRISH, RR, ZHANG, H-F, Contribution of crustal anatexis to the tectonic evolution of Indian crust beneath southern Tibet, *Geological Society of America Bulletin*, January 2011, v. 123, p. 218-239, doi:10.1130/B30085.1

Lloyd, N.S., Schwieters, J., Horstwood, M.S.A., and Parrish, R.R., in press, Particle Detectors Used in Isotope Ratio Mass Spectrometry, with Applications in Geology, Environmental Science and Nuclear Forensics, in Claus Grupen, Irene Buvat (eds.), *Handbook of Particle Detection and Imaging*, DOI 10.1007/978-3-642-13271_42, © Springer-Verlag Berlin Heidelberg 2011.

Accepted papers

Cottle, J, Searle, MP, Horstwood, MSA, Waters, DJ, Noble, SR, Parrish, RR, (accepted) U(-Th)-Pb age constraints on the timing and duration of channel flow in the Mt. Everest region, Eastern Himalaya, *Geological Society of America*.

Reichow, M.K., Parrish, R.R., Litvinovsky, B.A., Saunders, A.D., Zandvilevich, A.N., and Horstwood, M.S.A (2010) Formation of the Mongolian Transbaikalian granitoids Belt Siberia (Russia): Evidence from U-Pb geochronology, Pb and Hf isotopes; *Chemical Geology*, 273, 120-135, DOI: 10.1016/j.chemgeo.2010.02.017.

Searle MP, Parrish RR, Thow A, Noble SR, Phillips R, and Waters, D. in press, Anatomy, Age and Evolution of a Collisional Mountain Belt: the Baltoro granite batholith and Karakoram Metamorphic Complex, Pakistani Karakoram. *J Geological Society* 167, 183-202, DOI: 10.1144/0016-76492009-043

Storey, C, Brewer, T, Anczkiewicz, R, Parrish, R and Thirlwall M. 2009 Multiple high-pressure metamorphic events and crustal telescoping in the northwest Highlands of Scotland" *Journal of the Geological Society*, In press.

Xu, W.-C., H.-F. Zhang, et al. (2010). Timing of granulite-facies metamorphism in the eastern Himalayan syntaxis and its tectonic implications. *Tectonophysics*. doi:10.1016/j.tecto.2009.12.023

2009

Chambers, J., M. Caddick, T. Argles, M. Horstwood, S. Sherlock, N. Harris, R. Parrish and T. Ahmad, (2009) Empirical constraints on extrusion mechanisms from the upper margin of an exhumed high-grade orogenic core, Sutlej Valley, NW India, *Tectonophysics*. doi:10.1016/j.tecto.2008.10.013

Cottle JM, Horstwood MSA, and Parrish RR. (2009) A new approach to single shot laser ablation analysis and its application to in situ Pb/U geochronology, *J. Anal. At. Spectrom.*, DOI: 10.1039/b821899d

Cottle J. M., M. J. Jessup, D. L. Newell, M. S. A. Horstwood, S. R. Noble, R. R. Parrish, D. J. Waters, M. P. Searle (2009), Geochronology of granulitized eclogite from the Ama Drime Massif: Implications for the tectonic evolution of the South Tibetan Himalaya, *Tectonics*, 28, TC1002, doi:10.1029/2008TC002256.

Lloyd, N. S., Chenery, S. R. & Parrish, R. R. (2009). "The distribution of depleted uranium contamination in Colonie, NY, USA." *Science of the Total Environment* 408(2): 397-407.

Lloyd, N. S., Mosselmans, J. F. W., Parrish, R. R., Chenery, S. R., Hainsworth, S. V. & Kemp, S. J. 2009a. The morphologies and compositions of depleted uranium particles from an environmental case-study. *Mineralogical Magazine*, 73 (3), 493-508.

Lloyd NS, Parrish RR, Horstwood MSA, Chenery SRN. 2009 Precise and accurate isotopic analysis of microscopic uranium-oxide grains using LA-MC-ICP-MS, *J. Anal. At. Spectrom.*, 24, 752-758 DOI: 10.1039/b819373h

Parrish RR. Comment on: "Does the Karakoram fault interrupt mid-crustal channel flow in the western Himalaya?" by Mary L. Leech, *Earth and Planetary Science Letters* 276 (2008) 314-322 *Earth and Planetary Science Letters*, 2009, Published on line 13 June 2009, doi:10.1016/j.epsl.2009.05.038.

Thackrey S, Walkden G, Indares A, Horstwood M, Kelley S, and Parrish R. The use of heavy mineral correlation for determining the source of impact ejecta: A Manicouagan distal ejecta case study *Earth and Planetary Science Letters*, Volume 285, Issues 1-2, 30 2009, Pages 163-172

2008

ALLEN, R., NAJMAN, Y., CARTER, A., BARFOD, D., BICKLE, M.J., CHAPMAN, H.J., GARZANTI, E., VEZZOLI, G., ANDO, S. and PARRISH, R.R., 2008. Provenance of the Tertiary sedimentary

- rocks of the Indo-Burman Ranges, Burma (Myanmar): Burman arc or Himalayan-derived? *Journal of the Geological Society*, 165, 1045-1057.
- Bacon, JR, Linge, KL, Van Vaeck, L, and Parrish, RR. (2008). Atomic spectrometry update: Atomic mass spectrometry. *J. Anal. At. Spectrom.*, v. 23, p 1130-1162.
- Chambers, JA., Argyles, TW, Ahmed, T, Horstwood, MS, Harris, NBW, Parrish, RR, Implications of Palaeoproterozoic anatexis in Himalayan metasediments for the correlation of major thrust zones in the Sutlej Valley, Himachel Pradesh, *Journal of the Geological Society*, v. 165: 725-737.
- Cicchella, D, De Vivo, B, Lima, A, Albanese, S, McGill, R.A.R, Parrish, RR, (2008) Heavy metal pollution and Pb isotopes in urban soils of Napoli, Italy, *Geochemistry: Exploration, Environment, Analysis*, v 8, p. 103-112.
- Leeder, MR, Mack, GH, Brasier, AT, Parrish, RR, McIntosh, WC, Andrews, JE, and Duermeijer, CE, (2008), Late-Pliocene timing of Corinth (Greece) rift-margin fault migration, *Earth and Planetary Science Letters*, v. 275, p.132-141.
- Najman, Y, Bickle, M, Carter, A, Garzanti, F, Wilbrans, J., Willett, S, Oliver, G, Parrish, RR, Akhter, SH, Allen, R., Ando, S, Chisty, E, Reisberg, L, and Vessoli, G., (2008), The Palaeogene record of Himalayan erosion, *Earth and Planetary Science Letters*, v. 273, p. 1-14.
- Parrish, R. R., Arneson, J.Brewer, T., Chenery, S., Lloyd, N., Carpenter, D. 2008. Depleted uranium contamination by inhalation exposure and its detection after >25 years: implications for health assessment. *Science of the Total Environment*, *Science of the Total Environment* v. 390, 58-68; doi:10.1016/j.scitotenv.2007.09.044.
- THORNTON, I., FARAGO, M.E., THUMS, C.R., PARRISH, R.R., MCGILL, R.A.R., BREWARD, N., FORTEY, N.J., SIMPSON, P., YOUNG, S.D., TYE, A.M., CROUT, N.M.J., HOUGH, R.L. and WATT, J., 2008. Urban geochemistry: research strategies to assist risk assessment and remediation of brownfield sites in urban areas. *Environmental Geochemistry and Health*, 30(6), 565-576.
- Zhang, H. F., R. Parrish, et al. (2008). "Reply to the comment by Zhang et al. on: "First finding of A-type and adakitic magmatism association in Songpan-Garze fold belt, eastern Tibetan Plateau: Implication for lithospheric delamination"." *Lithos* **103**(3-4): 565-568.

2007

- Bacon, JR, Linge, KL, Van Vaeck, L, and Parrish, RR. (2007). Atomic spectrometry update: Atomic mass spectrometry. *J. Anal. At. Spectrom.*, v. 22, p 1-34.
- CADDICK, M.J., BICKLE, M., HARRIS, N.B.W., HOLLAND, T.J.B., HORSTWOOD, M.S.A., PARRISH, R.R. and AHMAD, T., 2007. Burial and exhumation history of a Lesser Himalayan schist: Recording the formation of an inverted metamorphic sequence in NW India. *Earth and Planetary Science Letters*, **264**(3-4), 375-390.
- COTTLE, J.M., JESSUP, M.J., NEWELL, D.L., SEARLE, M.P., PARRISH, R.R., NOBLE, S.R. and WATERS, D.J., 2007. Structural evolution of the South Tibetan Detachment System, Kharta region, Eastern Himalaya. *Journal of Structural Geology*, **29**, 1781-1797.
- King, JA, Argyles, T., Harris, N., Parrish, RR, Charlier, B, Sherlock, S, 2008, First evidence of southward ductile flow of Asian crust beneath Southern Tibet, *Geology*, v 8, 727-730.

- Kinnaird, TC, Prave, AR, Kirkland, CL, Horstwood, MSA, Parrish, RR and Batchelor, RA, 2007. The late Mesoproterozoic – Early Neoproterozoic tectonostratigraphic evolution of Northwest Scotland: The Torridonian revisited. *Journal of the Geological Society*, London, v. 164, p. 541-551.
- Kotkova, J, Gerdes, A, Parrish, RR, and Kovac, M. 2007, Clasts of Variscan high-grade rocks within Upper Viséan conglomerates – constraints on exhumation history from petrology and U-Pb chronology. *Journal of Metamorphic Geology*, 25, 781-801.
- PARRISH, R.R., 2007. War veterans test negative for depleted uranium, *Planet Earth*, pp. 9.
- PARRISH, R.R., 2007. Weapons factory workers and nearby workers exposed to depleted uranium, *Planet Earth*, pp. 8-9.
- WARREN, C.J., SEARLE, M.P., PARRISH, R.R. and WATERS, D.J., 2007. Reply to comment by F. Boudier and A. Nicolas on "Dating the geologic history of oman's semail ophiolite: Insights from u-pb geochronology" by C.J. Warren, R.R. Parrish, M.P. Searle and D.J. Waters. *Contributions to Mineralogy and Petrology*, **154(1)**, 115-118.
- Zhang, H-F, Parrish, RR, Zhang, L, Xu, W-C, Yuan, H-L, and Gao, S, Crowley, QG 2007, A-type and adakitic magmatism in the Songpan-Garze fold belt, eastern Tibetan Plateau: Implication for lithospheric delamination, *Lithos* 97, 323-335.

2006

- Bacon, JR, Linge, KL, Van Vaeck, L, and Parrish, RR. (2006). Atomic spectrometry update: Atomic mass spectrometry. *J. Anal. At. Spectrom.*, v. 21, p 1-34.
- Fedorowich, JS, Parrish, RR and EA Kinsman, 2006, U-Pb dating of a diabase dike resolves the problem of mutually crosscutting relationships within the Fraser-Strathcona Deep Copper vein system, Sudbury Basin, *Economic Geology*, 1595-1603.
- Godin, L, Gleeson, T, Searle, MP, Ullrich, TD, and Parrish, RR, 2006, Locking of southward extrusion in favour of rapid crustal-scale buckling of the Greater Himalayan sequence, Nar valley, central Nepal. In Law, RD, Searle, MP, and Godin, L. (eds) *Channel Flow, Ductile Extrusion and Exhumation in continental Collision Zones*. Geological Society, London, Special Publications, 268, 269-293.
- Monaghan, A., and Parrish, R. R., 2006, Geochronology of Carboniferous–Permian magmatism in the Midland Valley of Scotland: implications for regional tectono-magmatic evolution and the numerical timescale. *Journal of the Geological Society* 163: 15-28.
- Parrish, R.R., Gough, S., Searle, M.P., and Waters, D. (2006) Plate velocity exhumation of UHP rocks, Kaghan Valley, Pakistan, *Geology*, v.34, n. 11, 989-992.
- Parrish, RR, Thirlwall, M, Pickford, C, Horstwood, MSA, Gerdes, A., Anderson, J., and Coggan, D., 2006, Determination of $^{238}\text{U}/^{235}\text{U}$, $^{236}\text{U}/^{238}\text{U}$ and uranium concentration in urine using SF-ICP-MS and MC-ICP-MS: An interlaboratory comparison. *Health Physics* v.90 (2), p. 127-138.
- Rainbird, RH, Davis, WJ, Stern, RA, Peterson, TD, Smith, SR, Parrish, RR, and Haklari, T, 2006, Ar-Ar and U-Pb Geochronology of a Late Proterozoic Rift Basin: Support for a genetic link with Hudsonian Orogenesis, Western Churchill Province, Nunavut, Canada, *Journal of Geology*, 114, 1-17.

Richards, A, Parrish, R.R., Harris, N, Argyles, T., and Li, Z., 2006, Correlation of lithotectonic units across the eastern Himalaya, Bhutan, *Geology*, v.34, n. 5, p. 341-344.

2005

Chambers, L.M., Pringle, M.S., and Parrish, R. R., 2005, Rapid formation of the Small Isles Tertiary centre constrained by precise $^{40}\text{Ar}/^{39}\text{Ar}$ and U-Pb ages, *Lithos*, v.79, 367-384.

Davis, D. W., Amelin, Y., Nowell, G. M. and Parrish, R. R. 2005. Hf isotopes in zircon from the western Superior province, Canada: Implications for Archean crustal development and evolution of the depleted mantle reservoir. *Precambrian Research*, v. 140, no. 3-4, p. 132-156.

Mason, T.F.D., Weiss, D.J., Chapman, J.B., Wilkinson, J.J., Tessalina, S.G., Spiro, B., Horstwood, M.S.A., Parrish, R.R., Spratt, J., and Coles, B.J. (2005). Zn and Cu isotopic variability in the Alexandrinka volcanic-hosted massive sulphide (VHMS) ore deposit, Urals, Russia. *Chemical Geology*,

Parrish, Randall R, 2005, Cool rocks and hot flow, *Earthwise*, v. 22, 20-21.

Richards, A., Argyles, T, Harris, N., Parrish, R., Ahmad, T., Darbyshire, F., Draganits, E., 2005, Himalayan architecture constrained by isotopic tracers from clastic sediments, *Earth and Planetary Science Letters*, v. 236, 773-796.

Searle, M.P., Warren, C.J., Waters, D.J., Parrish, R.R. 2005, Reply to: Comment by Gray, Gregory and Miller on "Structural evolution, metamorphism and restoration of the Arabian continental margin, Saih Hatat region, Oman Mountains", *Journal of Structural Geology*, 27 (2), p.375-377.

Warren, C., Parrish, R.R., Waters, D., and Searle, M.P, 2005, Dating eclogite facies metamorphism: Controversies and solutions from Oman. *Contributions to Mineralogy and Petrology*, v 150, 403-422.

2004

Brewer, T.S., K-I. Åhäll, J.F. Menuge, C.D. Storey and R.R. Parrish. 2004. Mesoproterozoic bimodal volcanism in SW Norway, evidence for recurring pre-Sveconorwegian continental margin tectonism. *Precambrian Research*, 134, 249-273.

Foster G., R. R. Parrish, M.S.A. Horstwood, S. Chenery, J. Pyle, H. D. Gibson, 2004, The generation of prograde P-T-t points and paths; a textural, compositional, and chronological study of metamorphic monazite, *Earth and Planetary Science Letters*, v. 228, 125-142.

Mason, A.J. Parrish, R.R. and Brewer, T.S. 2004. U-Pb geochronology of Lewisian orthogneisses in the Outer Hebrides, Scotland: implications for tectonic setting and correlation of the South Harris Complex. *Journal of the Geological Society of London*, 161, 45-54.

Mason, T. F. D., D. J. Weiss, M. Horstwood, R. R. Parrish, S. S. Russell, E. Mullane and B.J. Coles High-precision Cu and Zn isotope analysis by plasma source mass spectrometry Part 1. Spectral interferences and their correction, *J. Anal. At. Spectrom.*, 2004, 19, 209 - 217.

- Mason, T. F. D., D. J. Weiss, M. Horstwood, R. R. Parrish, S. S. Russell, E. Mullane and B.J. Coles
High-precision Cu and Zn isotope analysis using MC-ICP-MS: Part 2. Correcting for Mass
bias and Non-Spectral Effects. *J. Anal. At. Spectrom.*, 2004, 19 (2), 218 - 226.
- Mason, A, Temperley, S. and Parrish, RR, 2004, New light on the construction, evolution and
correlation of the Langavat Belt (Lewisian Complex), Outer Hebrides, Scotland: field,
petrographic and geochronological evidence for an early Proterozoic imbricate zone,
Journal of the Geological Society, 161, pp. 837-848.
- Parrish, Randall R, 2004, The paradox of Uranium, *Earthwise*, v. 21, 6-7.
- Parrish, Randall R, 2004, A question of time, *Earthwise*, v. 22, 14-15.
- Phillips, R.J., Parrish, R.R., and Searle, M.P., (2004) Age constraints on ductile deformation
and long-term slip rate along the Karakoram fault zone, Ladakh, Earth and Planetary
Science Letters, v 226 3-4, 305-319.
- Searle, MP, CJ Warren, RR Parrish, and DJ Waters, 2004, Structural evolution,
metamorphism and restoration of the Arabian continental margin, Saih Hatat region,
Oman Mountains, *Journal of Structural Geology*, v. 26, 451-473.
- Storey, CD, Brewer, TS., and Parrish, R.R. 2004, Late proterozoic tectonics in northwest
Scotland: one contractional orogeny or several? *Precambrian Research*, v.134,
- Timmermann, H., Stedra, V., Gerdes, A., Noble, S.R., Parrish, R.R., and Dorr, W., 2004, The
Problem of Dating High-pressure Metamorphism: a U-Pb Isotope and Geochemical
study on Eclogites and Related Rocks of the Marianske Lazne Complex, Czech Republic
Journal of Petrology, v. 45, pp. 1311-1338.
- Zhang, H., Harris, N., Parrish, R., Kelley, S., Zhang, L., Rogers, N., Argles, T., and King, J., 2004,
Causes and consequences of protracted melting of the mid-crust exposed in the North
Himalayan antiform, *Earth and Planetary Sciences Letters*, v.228, 195-212.
- Zhang, H. F., N. Harris, et al. (2004). "U-Pb ages of Kude and Sajia leucogranites in Saffia
dome from North Himalaya and their geological implications." *Chinese Science Bulletin*
49(19): 2087-2092.

2003

- Brewer, T.S., Storey, C.D., Parrish, R.R., Temperley, S. and Windley, B.F. 2003. Grenvillian age
decompression of eclogites in the Glenelg-Attadale inlier, NW Scotland. *Journal of the
Geological Society*. 160, 565-574.
- Daniel, C.G., Hollister, L.S., Parrish, R.R., and Grujic, D., (2003) Exhumation of the Main
Central Thrust Zone from lower crustal depths, eastern Bhutan Himalaya, *Journal of
Metamorphic Geology*, v 21, 317-334.
- Foster, G, and R R Parrish, (2003) Metamorphic monazite and the generation of P-T-t paths,
from Vance, D., Muller, W., and Villa, I.M., (eds) *Geochronology: Linking the Isotopic
Record with Petrology and Textures*. Geological Society, Special Publications, 22, 25-47.
- Horstwood, MSA, Parrish, RR, Nowell, GM, and Noble, SR, 2003, Accessory mineral U-Th-Pb
geochronology by laser-ablation plasma-ionisation multi-collector mass spectrometry
(LA-PIMMS), *J. Anal. At. Spectrom.*, 2003, 18, 837 - 846.

- Ingle, C.P., Sharp, B.L., Horstwood, M.S.A., Parrish, R.R. and Lewis, D.J. 2003. Instrument response functions, mass bias and matrix effects in isotope ratio measurements and semi-quantitative analysis by single and multi-collector ICP-MS. *J. of Analytical Atomic Spectroscopy*, vol. 18, pp.219-229.
- McGill, R.A.R., Pearce, J.M., Fortey, N.J. Watt, J., Ault, L. and Parrish, R.R. 2003. Contaminant source apportionment by PIMMS lead-isotope analysis and SEM-image analysis. *Environmental Geochemistry and Health*, vol. 25, pages 25-32
- Pálffy, József, Parrish, Randall R., David, Karine, and Vörös, Attila, (2003) Middle Triassic integrated U-Pb geochronology and ammonoid biochronology from the Balaton Highland (Hungary) and their bearing on problems of time scale, evolution, and sedimentation, *Journal of the Geological Society* v 160, 271-284.
- Parrish, RR, and SR Noble (2003) Zircon U-Pb geochronology by isotope dilution – thermal ionisation mass spectrometry (ID-TIMS), in John M. Hancher and Paul W.O. Hoskin, eds., *Zircon, Reviews in Mineralogy and Geochemistry*, v. 53 p. 183-213, Mineralogical Society of America and Geochemical Society.
- Searle, MP, Simpson, RL, Law, RD, Waters, DJ, and Parrish, RR, 2003, The structural geometry, metamorphic and magmatic evolution of the Everest massif, Nepal Himalaya - South Tibet, *Journal of the Geological Society*, v.160, pp. 345-366.
- Searle, M.P., Warren, C.J., Waters, D.J., Parrish, R.R., 2003, Subduction zone polarity in the Oman mountains: implications for ophiolite emplacement. In: Dilek, Y. and Robinson, P.T. (eds) *Ophiolites in Earth History*. Geological Society London Special Publications, 218, 1-14.
- Treloar, PJ, O'Brien, PJ, Parrish, RR, and Khan, MA (2003), Exhumation of early Tertiary, coesite-bearing eclogites from the Pakistan Himalaya, *Journal of the Geological Society*, v. 160, 367-376.
- Warren, CJ, Parrish, RR, Searle MP, and Waters, DJ, 2003, Dating the subduction of the Arabian continental margin beneath the Semail Ophiolite, Oman, *Geology*, 31, 889-892.

2002

- Foster, G., Gibson, H. D., Parrish, R. R., Fraser, J., and Tindle, A, 2002, Textural, Chemical and Isotopic Insights into the Nature and Behaviour of Metamorphic Monazite, *Chemical Geology* 191, 183-207.
- Grujic, D, Hollister, L, and Parrish, R R, 2002, Himalayan metamorphic sequence as an orogenic channel: insight from Bhutan, *Earth and Planetary Science Letters*, v.198, p. 177-191.
- Scherrer, N.C., Engi, M., Berger, A., Parrish, R.R. and Cheburkin, A. (2002): Nondestructive chemical dating of young monazite using XRF: 2. Context sensitive microanalysis and comparison with Th-Pb laser-ablation mass spectrometric data. *Chemical Geology*, 191 (1-3), 241-253.
- Searle, MP, Simpson, RL, Law, RD, Waters, DJ, and Parrish, RR, 2002, Quantifying displacement on the South Tibetan Detachment normal fault, Everest massif, and the timing of crustal thickening and uplift in the Himalaya and South Tibet, *Journal of the Nepal Geological Society* , v. 26, pp. 1-6.

Tarzia M., De Vivo B., Somma R., Ayuso R. A., McGill R. A. R. and Parrish R. R., 2002. Anthropogenic vs. natural pollution: an environmental study of an industrial site under remediation (Naples, Italy) *Geochemistry, Exploration, Environment, Analysis* v.2 45-56.

Timmermann, H., Jamieson, R. A., Parrish, R. R., and Culshaw, N. G., 2002, Coeval migmatites and granulites, Muskoka domain, southwestern Grenville Province, Ontario, *Canadian Journal of Earth Sciences*, v. 39, p. 239-258.

2001

Crowley, J.L., Brown, R.L., and Parrish, R. R., 2001, Diachronous deformation and a strain gradient beneath the Selkirk allochthon, northern Monashee complex, southeastern Canadian Cordillera. *Journal of Structural Geology*, v. 23, p. 11003-1121.

Engi, M, Scherrer, N.C., Burri, T, 2001, Metamorphic evolution of pelitic rocks of the Monte Rosa nappe: constraints from petrology and single grain monazite age data. *Schweiz. Mineral. Petrogr. Mitt* 81, p. 305-328. (contains data produced by Parrish)

Fraser, J, Searle, M, Parrish, R, and Noble, S, 2001, Chronology of deformation, metamorphism and magmatism in the southern Karakoram Mountains, *Geological Society of America Bulletin*, v.113, 1443-1455.

Godin, L., Parrish, R. R., Brown, R. L., and Hodges, K. V., 2001, Crustal thickening leading to exhumation of the Himalayan metamorphic core of Central Nepal: Insight from U-Pb geochronology and $40\text{Ar}/39\text{Ar}$ thermochronology, *Tectonics*, v.20, 729-747

Hildebrand, PR, Noble, SR, Searle, MP, Waters, DJ, and Parrish, RR, 2001, Old origin for an active mountain range: Geology and geochronology of the eastern Hindu Kush, Pakistan, *Geological Society of America Bulletin*, v 113, p. 625-639.

Johnson, M.R.W., Oliver, G.J.H., Parrish, R. R., and Johnson, S.P., 2001, Syn-thrusting metamorphism, cooling and erosion of the Himalayan Kathmandu Complex, Nepal, *Tectonics*, v. 20, p. 394-415.

Nowell, G., and Parrish, R.R. 2001. Simultaneous acquisition of isotope compositions and parent/daughter ratios by non-isotope dilution-mode Plasma Ionisation Multi-collector Mass Spectrometry (PIMMS), in *Plasma Source Mass Spectrometry: The New Millennium*, edited by G. Holland and S D Tanner, Proceedings of the 7th International Conference on Plasma Source Mass Spectrometry: The Millennium conference, Royal Society of Chemistry, Special Publication 267, 298-310.

Parrish, R R, 2001, The response of mineral chronometers to metamorphism and deformation in orogenic belts, *in*, Miller, JA, Holdsworth, RE, Buick, IS, and Hand, M, (eds.) *Continental Reactivation and Reworking*. Geological Society, London, Special Publications, 184, 289-301.

White, NM, Parrish, RR, Bickle, MJ, and Najman, YMR, Burbank, D, and Maithani, A, 2001, Metamorphism and exhumation of the NW Himalaya constrained by U-Th-Pb analysis of detrital monazite grains from early foreland basin sediments. *Journal of the Geological Society*, v.158, 625-635.

2000

- Anderson, H. E., and R. R. Parrish, 2000, U-Pb geochronological evidence for the geological history of the Purcell (Belt) Supergroup, southeastern British Columbia, in, *The Geological Environment of the Sullivan Deposit*, B., ed. by J. Lydon, T. Höy, J.F. Slack, and M. E. Knapp, Geological Association of Canada, Mineral Deposits Division, Special Publication No. 1., pp. 113-126.
- Bradley, DC, Parrish, R R, Clendenen, W.C., Lux, D, Layer, P.W., Heizler, M, and Donley, DT, 2000, New geochronological evidence for the timing of early Tertiary ridge subduction in southern Alaska. *In Geologic Studies in Alaska by the U.S. Geological Survey, 1998*, edited by K D. Kelley and L. P. Gough, U.S. Geological Survey Professional Paper 1615, p. 5-20.
- Parrish, RR, 2000, PIMMS: Isotopic innovations in earth system science, *Earthwise*, 15, 30-31.
- Simpson, R, Parrish, RR, Searle, M, and Waters, D, 2000, Two episodes of monazite crystallisation during prograde metamorphism and crustal melting in the Everest region of the Nepalese Himalaya, *Geology*, 28, 403-406.
- Timmermann, H., Parrish, R.R., Noble, S.R., and Kryza, R., 2000, New U-Pb monazite and zircon data from the Sudetes Mountains in SW Poland: evidence for a single cycle Variscan orogeny. *Journal of the Geological Society*, 157, 265-268, London.

1999

- Anderson, H. E. and R. R. Parrish (1999). "U-Pb geochronological evidence for the geological history of the Belt-Purcell Supergroup, southeastern British Columbia." *Special Publication - Geological Association of Canada. Mineral Deposits Division 1*: 113-126.
- Bleeker, W., Parrish, R. R., and Kinsman, A., 1999, High-precision U-Pb geochronology of the Late Archean Kidd Creek deposit and surrounding Kidd volcanic complex, *Economic Geology Monograph 10*, pp. 43-70.
- Crowley, J.L. and Parrish, R. R., 1999, U-Pb isotopic constraints on diachronous metamorphism in the northern Monashee complex, southern Canadian Cordillera, *J Metamorphic Geology*, v.17, p. 483-502.
- Currie, L. D. and R. R. Parrish (1999). "Paleozoic and Mesozoic rocks of Stikinia exposed in northwestern British Columbia: Implications for correlations in the northern Cordillera: Reply." *Geological Society of America Bulletin* **111**(7): 1105-1106.
- Doughty, P. T., and Price, R. A., 1999, Tectonic evolution of the Priest River Complex, northern Idaho and Washington: A reappraisal of the Newport fault with new insights on metamorphic core complex formation, *Tectonics*, v. 18, 375-393.
- Gibson, H.D, Brown, R. L., and Parrish, R. R., 1999, Deformation-induced inverted metamorphic field gradients: an example from the southeastern Canadian Cordillera, *J Structural Geology*, v.21, p. 751-767.
- Godin, L, R.L. Brown, S. Hanmer, and R. Parrish, 1999, Back folds in the core of the Himalayan orogen: An alternative interpretation, *Geology*, v.27, p. 151-154.
- Currie, L. D. and R. R. Parrish (1999). "Paleozoic and Mesozoic rocks of Stikinia exposed in northwestern British Columbia: Implications for correlations in the northern Cordillera: Discussion and reply, *Geological Society of America Bulletin* **111**(7): 1103-1106.

1998

- Ames, D E, Watkinson, DH, and Parrish, RR, 1998, Dating of a regional hydrothermal system induced by the 1850Ma Sudbury impact event. *Geology*, 26, 447-450.
- Bowen, I., Walder, A.J., Hodgson, T., and Parrish, R.R., 1998, High precision and high accuracy isotopic measurement of uranium using lead and thorium calibration solutions by inductively coupled plasma-multiple collector-mass spectrometry, in *Applications of Inductively Coupled Plasma Mass Spectrometry to Radionuclide Determinations: Second Volume*, edited by Roy W Morrow and Jeffrey S Crain, ASTM Special technical publication 1344., pp. 21-26.
- Davis, WB, Parrish, RR, McNicoll, V, and Bellerive, D., 1998, Analytical techniques for the determination of ^{208}Pb - ^{232}Th ages of monazite and zircon at the Geochronology Laboratory, Geological Survey of Canada, in *Radiogenic Age and Isotopic Studies*, Report n. 11, Geological Survey of Canada, Current Research 1998-F, p. 19-22.
- Hildebrand, P., Noble, S., Searle, M. P., Parrish, R., and Shadirullah, 1998, Tectonic significance of 24 Ma crustal melting in the eastern Hindu Kush, Pakistan, *Geology*, v.26, 871-874.
- Parrish, R. R. (1998). "Isotopic dating of ore deposits; applications and case studies." *Proceedings of the Ussher Society* **9, Part 4**: 283-284.
- Parrish, R. R., 1998, Radio-isotope dating sheds light on ancient deposits, *Earthwise*, Issue 12, p. 26-27.

1997

- Currie, L. D., and Parrish, R. R., 1997, Paleozoic and Mesozoic rocks of Stikinia exposed northwestern British Columbia: Implications for correlations in the northern Cordillera, *Geological Society of America Bulletin*, v.109, p. 1402-1420.
- Doughty, P. T., R. A. Price, et al. (1997). "Geology and U-Pb geochronology of Archean basement and Proterozoic cover in the Priest River Complex, northwestern United States, and their implications for Cordilleran structure and Precambrian continent reconstructions." *Canadian Journal of Earth Sciences* **35**(1): 39-54.
- Pálffy, J., Parrish, R. R., and Smith, P. L., 1997, A U-Pb age from the Toarcian (Lower Jurassic) and its use for time scale calibration through error analysis of biochronologic dating, *Earth and Planetary Science Letters*, v. 146, p. 659-675.
- Searle, M. P., Parrish, R. R., Hodges, K. V., Hurford, A., Ayres, M. W., and Whitehouse, M. J., 1997, Shisha Pangma leucogranite, South Tibetan Himalaya: field relations, geochemistry, age, origin and emplacement, *Journal of Geology*, v. 105, 295-317.
- Timmermann, H., Parrish, R. R., Jamieson, R. A., and Culshaw, N. G., 1997, Time of metamorphism beneath the Central Metasedimentary Belt boundary thrust zone, Grenville orogen, Ontario: Accretion at 1080 Ma?, *Canadian Journal of Earth Sciences*, v 34, 1023-1029.

1996

- Bleeker, W. and Parrish, R. R., 1996, Stratigraphy and U-Pb zircon geochronology of Kidd Creek: implications for the formation of giant volcanogenic massive sulphide deposits and the tectonic history of the Abitibi greenstone belt, *Canadian Journal of Earth Sciences*, v. 33, p. 1213-1231.
- Davis, W. J., R. R. Parrish, et al. (1996). "Isotopic age determinations of kimberlites and related rocks; methods and applications." *Open-File Report - Geological Survey of Canada*: 39-42.
- Hodges, K. V., Parrish, R. R., and Searle, M. P., 1996, Tectonic evolution of the central Annapurna Range, Nepalese Himalaya, *Tectonics*, v. 15, 1264-1291.
- Klötzli, U. S., and Parrish, R. R., 1996, Zircon U/Pb and Pb/Pb geochronology of the Rastenburg granodiorite, South Bohemian Massif, Austria; *Mineralogy and Petrology*, v. 58, p. 197-214.
- Parrish, R.R., and Hodges, K. V., 1996, Isotopic constraints on the provenance of the Lesser and Greater Himalayan sequences, Nepalese Himalaya, *Geological Society of America Bulletin*, v.108, p. 904-911.
- Spear, F., and Parrish, R. R., 1996, Petrology and cooling rates of the Valhalla complex, British Columbia, Canada, *Journal of Petrology*, v.37, p. 733-765.
- Wodicka, N., Parrish, R. R., and Jamieson, R., 1996, The Parry Sound domain: A far-travelled allochthon? New evidence from U-Pb zircon geochronology, *Canadian Journal of Earth Sciences*, v. 33, p. 1087-1104.

1995

- Dunphy, J. M., J. N. Ludden, et al. (1995). "Stitching together the Ungava Orogen, northern Quebec: Geochronological (TIMS and ICP-MS) and geochemical constraints on late magmatic events." *Canadian Journal of Earth Sciences* **32**(12): 2115-2127.
- Findlay, J. M., Parrish, R. R., Birkett, T. C., Watanabe, D. H., 1995, U-Pb ages of the Nimish Formation and Montagnais glomeroporphyritic gabbro of the central New Quebec Orogen, Canada, *Canadian Journal of Earth Sciences*, v. 32, pp. 1208-1220.
- Frisch, T, Jackson, G.D., Glebovitsky, V.A., Yefimov, M. M., Bogdanova, M. N., and Parrish, R. R., 1995, U-Pb ages of zircon from the Kolvitsa Gabbro-Anorthosite complex, southern Kola-Peninsula, Russia, *Petrology*, v. 3, 219-225.
- Murphy, D. C., van der Heyden, P., Parrish, R. R., Klepacki, D. W., McMillan, W., Struik, L. C., and Gabites, J., 1995, New geochronological constraints on Jurassic deformation of the western edge of North America, southeastern Canadian Cordillera, in Miller, K. M., and Busby, C., *Jurassic Magmatism and Tectonics of the North American Cordillera: Boulder, Colorado*, Geological Society of America Special Paper 299, p. 159-171.
- Mustard, P. S., Parrish, R. R., and McNicoll, V., 1995, Provenance of the Upper Cretaceous Nanaimo Group, British Columbia: Evidence from U-Pb analyses of detrital zircons, in *Stratigraphic Developments in Foreland Basins*, edited by S. Dorobek and G. Ross, SEPM Special Publication No. 52, p. 65-76.
- O'Sullivan, P. B. and Parrish, R. R., 1995, The importance of apatite composition and single-grain ages when interpreting fission data from plutonic rocks: a case study from the Coast Ranges, British Columbia, *Earth and Planetary Science Letters*, v. 132, p. 213-224.

Parrish, R. R., 1995, Thermal and tectonic evolution of the southeastern Canadian Cordillera, *Canadian Journal of Earth Sciences*, v. 32, pp. 1618-1642.

1994

Currie, L. and R. R. Parrish (1994). "Jurassic accretion of Nisling Terrane along the western margin of Stikina, coast mountains, northwestern British Columbia - Reply." *Geology* **22**(1): 90-90.

Hanmer, S., Parrish, R. R., Williams, M., and Kopf, C., 1994, Striding-Athabasca mylonite zone: complex Archean deep-crustal deformation in the East Athabasca mylonite triangle, northern Saskatchewan, *Canadian Journal of Earth Sciences*, v. 31, pp. 1287-1300.

Plint, H., and Parrish, R. R., 1994, U-Pb geochronometry in the Horseranch Range, northern Omineca Belt, British Columbia, Canada; *Canadian Journal of Earth Sciences*, v.31, 341-350.

1993

Currie, L., and Parrish, R. R., 1993, Jurassic accretion of Nisling terrane along the western margin of Stikinia, Coast Mountains, northwestern British Columbia, *Geology*, v.21, p. 235-238.

Gabrielse, H., Mortensen, J. M., Parrish, R. R., Harms, T. A., Nelson, J. L., and van der Heyden, P., 1993, Late Paleozoic plutons in the Sylvester allochthon, northern British Columbia, in, *Radiogenic Age and Isotopic Studies: Report 7*, Geological Survey of Canada, Paper 93-2, p. 107-118.

Leclair, A. D., Parrish, R. R., and Archibald, D. A., 1993, Evidence for Cretaceous deformation in the Kootenay Arc based on U-Pb and ⁴⁰Ar/³⁹Ar dating, southeastern British Columbia; in *Current Research, Part A*, Geological Survey of Canada, Paper 93-1A, p. 207-220.

Parrish, R. R., and Sager-Kinsman, E. A., 1993, Geochronology of detrital zircons from the Elzevir and Frontenac terranes, Central Metasedimentary Belt, Grenville Province, Ontario: Reply; *Canadian Journal of Earth Sciences*, v. 30, pp. 2526-2527.

Ross, G. M., McNicoll, V.J., Geldsetzer, H. H. J., Parrish, R. R., Carr, S. D., and Kinsman, A., 1993, Detrital zircon geochronology of Siluro-Devonian sandstones, Rocky Mountains, northeastern British Columbia, *Bulletin of Canadian Petroleum Geology*, v. 41, pp. 349-357.

Sager-Kinsman, E. A. and R. R. Parrish (1993). "Geochronology of detrital zircons from the Elzevir and Frontenac Terranes, central metasedimentary belt, Grenville Province, Ontario." *Canadian Journal of Earth Sciences* **30**(3): 465-473.

Sevigny, J. H., and Parrish, R. R., 1993, Age and origin of Late Jurassic and Paleocene granitoids, Nelson Batholith, southern British Columbia; *Canadian Journal of Earth Sciences*, v. 30, pp. 2305-2314.

Varsek, J. L., Cook, F. A., Clowes, R. M., Journeay, J. M., Monger, J. W. H., Parrish, R. R., Kanasewich, E. R., and Spencer, C. S., 1993, Lithoprobe crustal reflection structure of the southern Canadian Cordillera, II, Coast Mountains Transect; *Tectonics*, v. 12, 334-360.

Villeneuve, M. E., Ross, G. M., Theriault, R. J., Miles, W., Parrish, R. R., and Broome, J., 1993, Tectonic subdivision and U-Pb geochronology of the crystalline basement of the Alberta Basin, Western Canada, Geological Survey of Canada, Bulletin 447, 86pp.

1992

Brown, R. L., McNicoll, V. J., Parrish, R. R., and Scammell, R., 1992, Middle Jurassic plutonism in the Kootenay Terrane, northern Selkirk Mountains, British Columbia; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p. 135-141.

Cook, F. A., Varsek, J. L., Clowes, R. M., Kanasewich, E. R., Spencer, C. S., Parrish, R. R., Brown, R. L., Carr, S. D., Johnson, B. J., and Price, R. A., 1992, Lithoprobe crustal reflection cross section of the southern Canadian Cordillera, 1, foreland thrust and fold belt to Fraser River fault; *Tectonics*, v. 11, pp. 12-35.

Frisch, T. and Parrish, R. R., 1992, U-Pb zircon ages from the Chantry Inlet area, northern District of Keewatin; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p.35-41.

Hanmer, S., Bowring, S., van Breemen, O., and Parrish, R., 1992, Great Slave Lake shear zone, NW Canada: Mylonitic record of Early Proterozoic continental convergence, collision and indentation; *Journal of Structural Geology*, v.14, p. 757-773.

Hodges, K. V., Parrish, R. R., Housh, T. B., Lux, D. R., Burchfiel, B. C., Royden, L. H., and Chen, Z., 1992, Simultaneous Miocene extension and shortening in the Himalayan orogen, *Science*, v. 258, pp.1466-1470.

Lucas, S. B., St-Onge, M. R., Parrish, R. R., and Dunphy, J. M., 1992, Long-lived continent-ocean interaction in the Early Proterozoic Ungava Orogen, Northern Quebec, Canada; *Geology*, v. 20, p. 113-116.

McNicoll, V. J., Delaney, G. D., Parrish, R. R., and Heaman, L. H., U-Pb age determinations from the Glennie Lake Domain, Trans-Hudson Orogen, Saskatchewan, in *Radiogenic Age and Isotopic Studies: Report 6*; Geological Survey of Canada, Paper 92-2, p. 57-72.

Parrish, R. R., 1992, Miscellaneous U-Pb zircon dates from southeast British Columbia; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p. 143-153.

Parrish, R. R., 1992, U-Pb ages for Cretaceous plutons in the eastern Coast Belt, southern British Columbia; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p. 109-113.

Parrish, R. R., 1992, U-Pb ages of Jurassic-Eocene plutonic rocks in the vicinity of Valhalla Complex, southeast British Columbia; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p. 115-134.

Parrish, R. R., Bellerive, D., and Sullivan, R. W., 1992, U-Pb chemical procedures for titanite and allanite at the geochronology laboratory, Geological Survey of Canada; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p. 187-190.

Parrish, R. R., and McNicoll, V. J., 1992, U-Pb age determinations from the southern Vancouver Island area; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p. 79-86.

- Parrish, R. R., and Monger, J. W. H., 1992, New U-Pb dates from southwestern British Columbia; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p. 87-108.
- Parrish, R. R. and Tipper, H. W., 1992, U-Pb zircon age of a clast from the Uslika Formation, northern British Columbia, and implications for the age of the Uslika Formation; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p. 163-166.
- Ricketts, B. D., and Parrish, R. R., 1992, Age and provenance of felsic clasts in Bowser Basin, northern British Columbia; in *Radiogenic Age and Isotopic Studies: Report 6*; Geological Survey of Canada, Paper 92-2, p. 141-144.
- Ross, G. M., Parrish, R. R., and Winston, D., 1992, Provenance and U-Pb geochronology of the Middle Proterozoic Belt Supergroup (northwestern United States): Implications for age of deposition and pre-Panthalassa plate reconstructions; *Earth and Planetary Science Letters*, v. 113, p. 57-76.
- St-Onge, M. R., Lucas, S. B., and Parrish, R. R., 1992, Terrane accretion in the internal zone of the Ungava orogen, northern Quebec. Part 1: Tectonostratigraphic assemblages and their tectonic implications. *Canadian Journal of Earth Sciences*, v.29, p. 746-764.
- St-Onge, M. R., S. B. Lucas, et al. (1992). "Terrane accretion in the internal zone of the Ungava Orogen, Northern Quebec. 1. Tectonostratigraphic assemblages and their tectonic implications, " *Canadian Journal of Earth Sciences* **29**(4): 746-764.
- Struik, L. C., and Parrish, R. R., 1992, Geology and age of the Naver and Ste. Marie plutons, central British Columbia; in *Radiogenic Age and Isotopic Studies, Report 5*, Geological Survey of Canada, Paper 91-2, p. 155-162.
- Trettin, H. P., Parrish, R. R., and Roddick, J. C., 1992, New U-Pb and $^{40}\text{Ar}/^{39}\text{Ar}$ age determinations from northern Ellesmere and Axel Heiberg Islands and their tectonic significance; in *Radiogenic Age and Isotopic Studies, Report 6*, Geological Survey of Canada, Paper 92-2, p. 3-30.

1991

- Armstrong, R. L., Parrish, R. R., van der Heyden, P., Scott, K., and Runkle, D., 1991, Early Proterozoic basement exposures in the southern Canadian Cordillera: Core gneiss of Frenchman Cap, Unit I of the Grand Forks gneiss, and the Vaseaux formation; *Canadian Journal of Earth Sciences*, v.28, p. 1169-1201.
- Cecile, M. P., J. C. Harrison, et al. (1991). "Precambrian U-Pb ages of igneous rocks, Wrangel Complex, Wrangel Island, USSR." *Canadian Journal of Earth Sciences* **28**(9): 1340-1348.
- Coleman, M. E., and Parrish, R. R., 1991, Eocene dextral strike-slip and extensional faulting in the Bridge River terrane, southwest British Columbia; *Tectonics*, v.10, p. 1222-1238.
- Heaman, L. and Parrish, R. R., 1991, U-Pb geochronology of accessory minerals; in *Applications of radiogenic isotope systems to problems in geology*, Mineralogical Association of Canada, short course handbook, v. 19, p. 59-102.

- McDonough, M. R., and Parrish, R. R., 1991, Proterozoic gneisses of the Malton complex, British Columbia: U-Pb ages and Nd isotopic signatures; *Canadian Journal of Earth Sciences*, v. 28, p. 1202-1216.
- Murphy, D. C., Walker, R. T., and Parrish, R. R., 1991, Age and geological setting of Gold Creek gneiss, crystalline basement of the Windermere Supergroup, Cariboo Mountains, British Columbia, *Canadian Journal of Earth Sciences*, v.28, p.1217-1231.
- Parrish, R. R., 1991, Precambrian basement rocks of the Canadian Cordillera, Chapter 4, in *Geology of the Cordilleran Orogen in Canada*, H. Gabrielse and C. J. Yorath (ed.); Geological Survey of Canada, *Geology of Canada*, no. 4, p. 87-96 (also Geological Society of America, *The Geology of North America*, v. G-2).
- Parrish, R. R., Friedman, R. M., and Armstrong, R. L., 1991, Eocene Extension Faults, in *Structural Styles*, Chapter 17, H. Gabrielse, coordinating chapter author, in *Geology of the Cordilleran Orogen in Canada*, H. Gabrielse and C. J. Yorath (ed.); Geological Survey of Canada, *Geology of Canada*, no. 4, p. 660-664 (also Geological Society of America, *The Geology of North America*, v. G-2).
- Parrish, R. R. and Reichenbach, I., 1991, Age of xenocrystic zircon from diatremes of western Canada; *Canadian Journal of Earth Sciences*, v. 28, p. 1232-1238.
- Ross, G. M., and Parrish, R. R., 1991, Detrital zircon geochronology of metasedimentary rocks in the southern Omineca Belt, Canadian Cordillera; *Canadian Journal of Earth Sciences*, v. 28, p. 1254-1270.
- Ross, G. M., Parrish, R. R., and Dudas, F. O., 1991, Provenance of the Bonner Formation (Belt Supergroup), Montana: Insights from U-Pb and Sm-Nd analyses of detrital minerals; *Geology*, v. 19, p. 340-343.
- Ross, G. M., Parrish, R. R., Villeneuve, M. E., and Bowring, S. A., 1991, Geophysics and geochronology of the crystalline basement of the Alberta Basin, western Canada; *Canadian Journal of Earth Sciences*, v. 28, p. 512-522.
- 1990*
- Ayalew, T., Bell, K., Moore, J. M., and Parrish, R. R., 1990, U-Pb and Rb-Sr geochronology of the Western Ethiopian Shield. *Geological Society of America Bulletin*, v. 102, p. 1309-1316.
- Delaney, G. D., Heaman, L. M., Kamo, S., Parrish, R. R., Slimmon, W. L., and Reilly, B. A., 1990, U-Pb sphene/zircon geochronological investigations. In *Summary of Investigations 1990*, Saskatchewan Geological Survey; Saskatchewan Energy and Mines, *Miscellaneous Report 90-4*, p. 54-57.
- Gulson, B., Korsch, M. J., Parrish, R. R., Mizon, K. J., Carr, G. R., and Dean, J. A., 1990, Use of ^{202}Pb spike in common lead measurements. Centre for Isotope Studies, *Research Report 1988-1990*, pp. 137-138, North Ryde, Australia.
- Jackson, G., Hunt, P. A., Loveridge, W. D., and Parrish, R. R., 1990, Reconnaissance geochronology of Baffin Island. In *Radiogenic Age and Isotopic Studies*, Report 3, Geological Survey of Canada, Paper 89-3, p.123-148.
- Parrish, R. R., 1990, U-Pb dating of monazite and its application to geological problems. *Canadian Journal of Earth Sciences*, v.27, pp. 1431-1450.

- Parrish, R. R., Haugerud, R. A., and Price, R. A., 1990, The Eocene tectonic transition, Oregon to Alaska. Penrose Conference Report. Geological Society of America, GSA News and Information, v.12, p.124-125.
- Roden, M., Parrish, R. R., and Miller, D. S., 1990, The absolute age of the Eifelian Tioga ash bed, Pennsylvania; *Journal of Geology*, v. 98, pp. 282-285.
- Samson, S. D., P. J. Patchett, et al. (1990). "Origin and tectonic setting of ordovician Bentonites in North-America - isotopic and age constraints - reply." *Geological Society of America Bulletin* **102**(10): 1441-1441.
- Searle, M. P., Parrish, R. R., Tirrul, R., and Rex, D. C., 1990, Age of crystallization and cooling of the K2 gneiss in the Baltoro Karakoram. *Journal of the Geological Society*, London, v. 147, pp.603-606 .
- Sevigny, J. H., Parrish, R. R., Donelick, R. A., and Ghent, E. D., 1990, Northern Monashee Mountains, Omineca Crystalline Belt, British Columbia: timing of metamorphism, anatexis, and tectonic denudation; *Geology*, v. 18, pp. 103-106.
- van Breemen, O., Hanmer, S. K., and Parrish, R. R., 1990, Archean and Proterozoic mylonites along the southeastern margin of the Slave Structural Province, Northwest Territories. In *Radiogenic Age and Isotopic Studies, Report 3*, Geological Survey of Canada, Paper 89-3, p. 55-62.

1989

- Chandler, F. W. and Parrish, R. R., 1989, Age of the Richmond Gulf Group and implications for rifting in the Trans-Hudson orogen, Canada. *Precambrian Research*, **44**, 277-288.
- Green, A., Milkereit, B., Percival, J., Davidson, A., Cook, F. A., Parrish, R. R., Geis, W., Cannon, W., Hutchinson, D., West, G., and Clowes, R., 1989, Origin of deep crustal reflections: seismic profiling across high grade metamorphic terranes in Canada; *Tectonophysics*, v. 173, pp. 627-638.
- Jefferson, C. W. and Parrish, R. R., 1989, Late Proterozoic stratigraphy, U-Pb zircon ages and tectonic implications, Mackenzie Mountains, Northwestern Canada; *Canadian Journal of Sciences*, **26**, 1784-1801.
- Parrish, R. R., 1989, U-Pb geochronology of the Cape Smith Belt and Sugluk block, Northern Quebec; *Geoscience Canada*, v.16, 126-130.
- Parrish, R. R. and Tirrul, R., 1989, U-Pb age of the Baltoro granite, northwest Himalaya, and implications for monazite U-Pb systematics. *Geology*, v. 17, pp.1076-1079.
- Ross, G. M., Villeneuve, M. E., Parrish, R. R., and Bowring, S. A., 1989, Tectonic subdivision and U-Pb geochronology of the Precambrian basement of the Alberta Basin, Western Canada. Geological Survey of Canada, Open File 2103.
- Samson, S., Patchett, P. J., Roddick, J. C., and Parrish, R. R., 1989, Origin and tectonic setting of Ordovician bentonites in North America: Isotopic and age constraints; *Geological Society of America Bulletin*, v.101, 1175-1181.
- Sevigny, J. H., R. R. Parrish, et al. (1989). "Petrogenesis of peraluminous granites, Monashee Mountains, southeastern Canada Cordillera." *Journal of Petrology* **30**(3): 557-581.

1988

- Cook, F. A., Green, A.G., Simony, P.S., Price, R.A., Parrish, R. R., Milkereit, B., Gordy, P.L., Brown, R.L., Coffin, K.C., and Patenaude, C., 1988, Lithoprobe seismic reflection structure of the southeastern Canadian Cordillera: Initial results; *Tectonics*, 7, 157-180.
- Copeland, P., Parrish, R. R., and Harrison, T. M., 1988, Identification of inherited radiogenic Pb in monazite and its implications for U-Pb systematics; *Nature*, 333, 760-763.
- Delaney, G., Carr, S. C., and Parrish, R. R., 1988, Two U-Pb zircon ages from eastern Glennie Lake Domain, Trans-Hudson Orogen, Saskatchewan. In *Radiogenic Age and Isotopic Studies, Report 2. Geological Survey of Canada Paper 88-2*, pp. 51-58.
- Ghent, E. D., Stout, M. Z., and Parrish, R. R., 1988, Determination of metamorphic pressure-temperature- time (P-T-t) paths; *Geological Association of Canada-Mineralogical Association of Canada short course volume 14*, 155-188, St. John's.
- Parrish, R. R., Carr, S. C., and Parkinson, D., 1988, Eocene extensional tectonics and geochronology of the southern Omineca belt, British Columbia and Washington; *Tectonics*, v. 7, 181-212.
- Parrish, R. R. and Scammell, R. J., 1988, The age of the Mount Copeland syenite gneiss and its metamorphic zircons, Monashee complex, southeastern British Columbia. In *Radiogenic Age and Isotopic Studies, Report 2. Geological Survey of Canada Paper 88-2*, pp. 21-28.
- Roots, C. F. and Parrish, R. R., 1988, Age of the Mount Harper volcanic complex, southern Ogilvie Mountains, Yukon. In *Radiogenic Age and Isotopic Studies, Report 2. Geological Survey of Canada Paper 88-2*, pp. 29-36.

1987

- Armstrong, R. L., Parrish, R. R., van der Heyden, P., Reynolds, S. J., and Rehrig, W. A., 1987, Rb-Sr and U-Pb chronology of the Priest River metamorphic complex: Precambrian X basement and its Mesozoic-Cenozoic plutonic-metamorphic overprint near Spokane, Washington; in *Geology of Washington: Washington Division of Geology and Earth Resources, Bulletin 77*, 15-40.
- Carr, S. C., Parrish, R. R., and Brown, R. L., 1987, Eocene structural development of the Valhalla Complex, southeastern British Columbia; *Tectonics*, v.6, pp. 175-196.
- Cook, F. A., Simony, P. S., Coffin, K. C., Green, A. G., Milkereit, B., Price, R. A., Parrish, R., Patenaude, C., Gordy, P. L., and Brown, R. L., 1987, LITHOPROBE seismic reflection profiling of the southern Canadian Cordillera - Rocky Mountain thrust belt to Valhalla Gneiss Complex; *Geophysical Journal Royal Astronomical Society*, v.89, pp.91-98.
- Parrish, R. R., 1987, An improved micro-capsule for zircon dissolution in U-Pb geochronology; *Chemical Geology (Isotope Geoscience Section)*, 66, p. 99-102.
- Parrish, R. R. and Armstrong, R. L., 1987, The ca. 162 Ma Galena Bay stock and its relationship to the Columbia River fault zone, southeast British Columbia; *Geological Survey of Canada Paper 87-2*, p. 25-32.
- Parrish, R. R. and Bell, R., 1987, Age of the NOR breccia pipe, Wernecke Supergroup, Yukon Territory; *Geological Survey of Canada Paper 87-2*, p. 39-42.

- Parrish, R. R., Heinrich, S., and Archibald, D., 1987, Age of the Ice River complex, southeastern British Columbia; Geological Survey of Canada Paper 87-2, p. 33-38.
- Parrish, R. R. and Krogh, T. E., 1987, Synthesis and purification of ^{205}Pb for U-Pb for geochronology; Chemical Geology (Isotope Geoscience Section), 66, p. 103-110.
- Parrish, R. R., Roddick, J. C., Loveridge, W. D., and Sullivan, R. W., 1987, Uranium-Lead analytical techniques at the geochronology laboratory; Geological Survey of Canada Paper 87-2, p. 3-7.
- Roddick, J. C., Loveridge, W. D., and Parrish, R. R., 1987, Precise U/Pb dating of zircon of the sub-nanogram Pb Level; Chemical Geology (Isotope Geoscience Section), 66, p. 111-121.
- Trettin, H. P. and Parrish, R. R., 1987, Late Cretaceous bimodal magmatism, northern Ellesmere Island: Isotopic age and origin; Canadian Journal of Earth Sciences, v. 24, pp. 257-265.
- Trettin, H. P., Parrish, R. R., and Loveridge, W. D., 1987, U-Pb determinations on Proterozoic to Devonian rocks from northern Ellesmere Island, Arctic Canada; Canadian Journal of Earth Sciences, v. 24, pp. 246-256.

1986

- Brandon M.T., Orchard M.J., Parrish R.R., Sutherland Brown, A., and Yorath, C.J., 1986, Fossils ages and isotopic dates from the Paleozoic Sicker Group and associated intrusive rocks, Vancouver Island, British Columbia; in Current Research, Part A, Geological Survey of Canada, Paper 86- 1A, 683- 696.
- Van Breeman O., Parrish R.R., 1986, Zircons record ancient geological processes ; GEOS Vol 5 No.2.

1985

- Parrish R.R., Carr S.D. and Brown R.L., 1985, Valhalla gneiss complex, southeast British Columbia: 1984 field work; in Current Research, Part A, Geological Survey of Canada, Current Research, Paper 85- 1A, p. 81-87.
- Parrish R. R., Van Breeman O., 1985, Geochronology of the Baie Verte Peninsula, Newfoundland: Implications for the Tectonic Evolution of the Humber and Dunnage Zones of the Appalachian Orogen : A Discussion, J Geology, v 93, 510-511.

1984

- Evenchick C.A., Parrish R.R., Gabrielse H., 1984, Precambrian gneiss and late Proterozoic sedimentation in North – central British Columbia, Geology, 12, p.233-237.
- Parrish R.R., 1984, Slocan Lake Fault: A low angle fault zone bounding the Valhalla gneiss complex, Nelson map area, southern British Columbia; in Current Research. Part A, Geological Survey of Canada, Paper 84 – 1A, p.323 – 330.
- Parrish R.R. and Emslie R.F., 1984, Comment and Reply on “Origin and age of Adirondack anorthosites re- evaluated with Nd isotopes”, Geology, 12, 380-381.

Parrish R.R., Roddick J.C. 1984, Geochronology and isotope geology for the geologist and explorationist, Geological Association of Canada, Cordilleran Section Short Course 4. Feb 25,

1976-1983

Parrish R.R., Wheeler J.O., 1983, A U – Pb zircon age from the Kuskanax batholith, southeastern British Columbia, Canadian Journal of Earth Sciences, 20, 1751-1756.

Parrish R. R., 1983, Cenozoic thermal evolution and tectonics of the Coast Mountains of British Columbia – 1. Fission track dating, apparent uplift rates, and patterns of uplift, Tectonics, 2, 601-631.

Woodsworth G. J., Loveridge W.D., Parrish R.R., and Sullivan R.W., 1983, Uranium – lead dates from the Central Gneiss Complex and Ecstall pluton, Prince Rupert map area, British Columbia, Canadian Journal of Earth Sciences, 20, 1475-1483.

Parrish R. R., 1981, Geology of the Nemo Lakes belt, northern Valhalla Range, southeast British Columbia, Canadian Journal of Earth Sciences, 18, 944-958.

Downey M. E., Armstrong R. L., and Parrish R. R., 1980, K-Ar – Rb – Sr and fission track geochronometry of the Bock's Brook Stock, Klwane Ranges, southwestern Yukon Territory, in Current Research,, Part B, Geological Survey of Canada, Paper 80-1B, 189-193.

Parrish R. R., 1979, Geochronology and tectonics of the northern Wolverine Complex, British Columbia, Canadian Journal of Earth Sciences, 16, 1428-1438.

Parrish R. R., 1976, Structure and metamorphism in southern Swannell Ranges, British Columbia, in Current Research, Part A, Geological Survey Canada, Paper 76 – 1A , 83-86.

Field Trip Guidebooks and Short Courses

Parrish, R. R., 2001 and 2006, Short course on U-Th-Pb geochronology, Oxford University.

Parrish, R. R., Johnson, B., Monger, J. W. H., and Meyers, R., 1991, Geology and tectonic elements of south-central British Columbia; field trip guide, Fourth annual Kamloops Exploration Conference, Kamloops, British Columbia, 53 pp.

Parrish, R. R., 1992, Memorial to Richard Lee Armstrong 1937-1991; Geological Society of America.

Armstrong, R. L. and Parrish, R. R., 1990, A geological excursion across the Canadian Cordillera near 49°N (Highways 1 and 3 from Vancouver to southwestern Alberta and on to Calgary, Alberta). Field trip guide for Geological Association of Canada meeting, Vancouver, May 1990.

Price, R. A., Parrish, R. R., Monger, J. W. H., and Roddick, J. A., 1987, Cordilleran Cross-section: Calgary to Vancouver; XIX General Assembly, International Union of Geodesy and Geophysics, Guidebook for scientific excursion A1, Vancouver, Canada, 96 p.

Parrish, R. R., and Roddick, J. C., 1985, Geochronology and isotope geology for the geologist and explorationist; Geological Association of Canada, Short Course Number 4, 71 pp.

Parrish, R. R., Carr, S. C., and Parkinson, D., 1985, Metamorphic complexes and extensional tectonics, Southern Shuswap Complex, southeastern British Columbia Field Trip 12; Geological Society of America, Guidebook for Field Trips, p. 12-1 to 12- 15.