E. BRUCE WATSON
Rensselaer Polytechnic Institute
Short CV

EDUCATION

Williams College, 1968-1969
University of New Hampshire (B.A. in Geology, 1972)
Massachusetts Institute of Technology (PhD in Geochemistry, 1976)

PROFESSIONAL CAREER

Summer 1972: Field Geologist, U.S. Geological Survery
September 1976-August 1977: Post-doctoral Fellow, Carnegie Institution of Washington
1977-present: Assistant → Full Professor, Rensselaer Polytechnic Institute
1980: Visiting Scientist, Macquarie University, Australia (January - June)
1984: Visiting Scientist, Max-Planck-Institut für Chemie, Mainz (April - September)
1990-1995: Chair, Department of Earth & Environmental Sciences, RPI
1991-1994: Associate Dean of Science for Environmental Programs, RPI
1995-present: Institute Professor of Science, RPI
2011-present: Professor of Materials Science & Engineering (secondary appointment), RPI

MEMBERSHIPS AND AWARDS

Early Career Award, Rensselaer Polytechnic Institute (1982)
F.W. Clarke Medal of the Geochemical Society (1983)
NSF Presidential Young Investigator (1984-1989)
Geochemical Society (fellow)
American Geophysical Union (fellow)
Mineralogical Society of America (fellow)
Geological Society of America (fellow)
European Association for Geochemistry (fellow)
American Academy of Arts and Sciences (fellow, 1996)
National Academy of Sciences (member, 1997)
Arthur L. Day Medal, Geological Society of America (1998)
Participating Guest, Lawrence Livermore National Laboratory (1999)
Distinguished Alumnus, Engineering & Physical Sciences, University of New Hampshire (1999)
R.A. Daly Lecturer, American Geophysical Union (1999)
Listed in *A to Z of Earth Scientists* (150 notable Earth scientists, 18th century to present, 2002)
Original Member, Highly Cited Researchers, ISI/Thomsen Scientific (2002)
Oualline Lecturer, University of Texas at Austin (2004)
V.M. Goldschmidt Medal, Geochemical Society (2005)
W.H. Bucher Medal, American Geophysical Union (2006)
Kliegel Lecturer, Caltech (2008)
Murchison Medal, Geological Society of London (2011)
Woodford-Eckis lecturer, Pomona College (2013)
Doctor of Science (honorary), University of Chicago (2013)
Roebling Medal, Mineralogical Society of America (2018)

PROFESSIONAL SERVICE AND OUTREACH HIGHLIGHTS

Editorships

Associate Editor, *Geochimica et Cosmochimica Acta*, 1985-1988
Editor, *Chemical Geology*, 1991-1995
Editorial Board member, *Geochimica et Cosmochimica Acta*, 1997-1999
Editorial Board member, *Geofluids*, 2003-2017
Principal Editor, *Elements Magazine*, 2006-2009
Editor, *American Journal of Science* N.L. Bowen volume, 2016-2017
Founding Executive Editor, *Geochemical Perspectives Letters*, 2014-2017
Associate Editor, *American Mineralogist*, 2015-present
Served as editor for 9 PNAS submissions since 2007

Society and agency committees and service

Mineralogical Society of America (MSA)

Awards committee (member 1989-1990)
Roebling Medal Committee (member 1993-1994)
Vice President (1997)
President (1998)
Past President (1999)
Fellows nominating committee (member 2007-2008; chair 2009)
Long-range Planning Committee (member 2011-2013)

Geochemical Society (GS)

Clarke Medal Committee (1986-1989)
Goldschmidt Conference Publicity Chairman (1990)
Budget Committee (1990)
Councilor (1991-1994)
Nominating Committee (1998-2000)
Fellows Committee, w/ European Association of Geochemistry (2005-2008)
Rendered arbitration decision on contested major award (2007)

American Geophysical Union (AGU)

VGP Fellows Committee (member 1992-1995; chair 2001-2003)
VGP Nominating Committee (member, 1997)
Medals Committee (member, 2006-2008)

National Science Foundation (NSF)

Division of Earth Sciences proposal review panel (1987-1990)
Advisory Committee, Science & Technol. Ctr., Princeton-Stony Brook-Carnegie (1989-1992)
Site Committee for the Stony Brook Center for High-Pressure Research (member, 1992)
Continental Margins Steering Committee and Workshop (1993)
Committee of Visitors, Petrology & Geochemistry Program, NSF/EAR (1993)
Advisory Committee to the Geosciences Directorate (2008-2010)
Committee of Visitors, Instrumentation & Facilities Program, EAR Division (member, 1997)
Committee of Visitors, Instrumentation & Facilities Program, EAR Division (co-chair, 2010)
Frontiers in Earth-System Dynamics (FESD), proposal review/evaluation panel (2013).

National Academy of Sciences & National Research Council

NRC Advisory Panel on *"Physics and Chemistry of Earth Materials"* (member, 1986)
NAS Day Prize and Lectureship Committee (member, 2007)
NAS Stanley Miller Medal Committee (member, 2010)
NAS Nominating Committee (member, 2011–2013)
Review Coordinator, *NRC report on Volcanic Eruptions*, consensus study report (2017)

Department of Energy

O.P.A. Review Panel, Geochemistry (chair, 1993)
Reviewer of 22 applications for graduate fellowships in the ARRA program (2010)

Miscellaneous

Lunar and Planetary Institute workshop on Space Station Experiments (1985)

University of California Institute for Geophysics & Planetary Physics proposal review panel (member, 1990, 1991, 1992, 1993, 1994, 1999)

Visiting committees and related activities

- McGill University (1991)
- Carnegie Institution of Washington, Geophysical Laboratory (1992)
- Brown University (1993)
- Harvard University (1994)
- Harvard University (1999)
- Rice University (2000)
- Carnegie Institution of Washington, Geophysical Laboratory (2000)
- University of Houston (2002)
- University of Maryland (2003)
- Australian National University, Research School of Earth Sciences (2004, external reviewer)
- Arizona State University (2004; chair)
- University of New Hampshire (2004; chair)
- Rice University (2005)
- California Institute of Technology (2010)
- Woods Hole Oceanographic Institution, Ad Hoc tenure committee, Boston (March 2011)
- Case Western Reserve University (2014, chair)
- Carnegie Institution for Science, Geophysical Laboratory (2015, chair)
- Search Committee for Geophysical Laboratory Director (2016-2017, chair)

Outreach activities (**since 2002**)

- New Visions STEM program for local high-school students, presenter/mentor (2002-2014)
- WAMC (NPR) interview following lecture on *"Zircon as a window into the Earth's early history"*
- RPI/NASA Astrobiology Teachers Academy, presenter/mentor, 1 week each summer (2009-2014)
- "Earth Science Has No Boundaries" (presentations to STEM HS teachers; 2010, 2011, 2012)
- Rensselaer Summer Astronomy Institute (presentations to STEM HS teachers; 2013)

- Science Teachers of New York State (STANYS), lecture on *"Early Earth Environments"* (2013)
- Bernard Harris Summer Sceince Camp (ages 10-12), 1-day presenter/demonstrator (2010-2016)
- Host for high-school students from the Hellman School in Albany (November 7-8, 2012)
- Capital District Materials & Microscopy Soc. & ASM, keynote lecture (2014)
- Questar III Research Institute for Science Teachers, summer program mentor (2015-2016)
- Hosted visit of 80 5th-graders from Hoosick Falls, NY in the E&ES Department (May 2016)
- East Greenbush, NY, Public Library: "*Ancient crystals & the early years of planet Earth*" (June 2017)
- "Science on Tap" presenter in local pub: *"Climate Change: Knowns, Unknowns and Unknowables"* (October 2017)

INVITED PRESENTATIONS (**since 2002**; does not include invitations for AGU, GSA and Goldschmidt sessions)

Living Planet Symposium, Carnegie Institution of Washington, D.C. (Sept. 2002)
Geological Society of Washington, D.C. (Oct. 2002)
George Washington University (Oct. 2002)
Case Western Reserve University (Nov. 2002)
Williams College (Nov. 2002)
Virginia Tech (Nov. 2002)
University of New Mexico (Apr. 2003)
Materials Research Society symposoium on The Science of Gem Materials (Dec. 2003)
Ohio State University (Feb. 2004)
California Institute of Technology (Mar. 2004)
University of Texas at Austin (4-lecture series, Apr. 2004)
SUNY Plattsburgh (2 lectures, Oct. 2004)
University of Toronto (2 lectures, Dec. 2004)
Harvard University (Feb. 2005)
American Museum of Natural History (Mar. 2005)
Boston College (Apr. 2005)
Australian National University (June 2005)
Geological survey of Western Australia (June 2005)
The Materials Society – TMS/ASM (Nov. 2005)
University of Houston (2 lectures, Feb. 2006)
Massachusetts Institute of Technology (2 lectures, Mar. 2006)
University of Minnesota (Apr. 2006)
Yale University (Sept. 2006)
Syracuse University (Apr. 2007)
Frontiers in Mineral Sciences Conf. at Cambridge University (Jun. 2007)
Syracuse University (Oct. 2007)
American Physical Society, 'Planets' Symposium at Skidmore College (Oct. 2007)
University at Albany (Nov. 2007)
RPI Physics Department; "*Radioactivity in the Earth*" (Feb. 2008)
California Institute of Technology (Apr. 2008)
University of California, Los Angeles (Apr. 2008)
University of Cincinnati (Rice Lecture, May 2008)
Vanderbilt University (Oct. 2008)
University of New Hampshire ("*Frontiers in Science*", College of Eng & Phys. Sciences, Jan. 2009)
U.S. DoE Symposium on *Experimental and Theoretical Geochemistry* (Mar. 2009)

University of Michigan (Apr. 2009)
NASA Astrobiology Institute webinar presenter (Apr. 2009)
RPI Materials Department *"Materials Science of Deep Time and High Pressure"* (Apr. 2009)
Memorial University of Newfoundland (Sept. 2009)
Lunar and Planetary Institute (Oct. 2009)
Atmospheric Sciences Research Center, University at Albany (Nov. 2009)
Lamont-Doherty Earth Observatory (Mar. 2010)
Pennsylvania State University (Mar. 2010)
Massachusetts Institute of Technology (May 2010)
Frederoick Frey Symposium at MIT (June 2010)
Brown University (2 lectures, Nov. 2010)
Mineralogical Society of America Shortcourse "*Diffusion in Minerals and Melts*" (Dec. 2010)
University of Chicago (Jan. 2011)
Lehigh University (2 lectures, Mar. 2011)
Diffusion Fundamentals IV Conference (Aug. 2011)
Middlebury College (Nov. 2011)
Geophysical Laboratory, Carnegie Inst. of Washington (June 2012)
Yale University (Oct. 2012)
University of North Carolina, Chapel Hill (Nov. 2012)
Syracuse University (Nov. 2012)
Pomona College (2 lectures, Feb. 2013)
University of Rochester (Apr. 2013)
University of Chicago (June 2013)
Princeton University (Oct. 2013)
University of Toronto (2 lectures, Nov. 2013)
Bard College (May 2014)
Astrobiology Graduate Conference (AbGradCon): Keynote address (March 2014)
Carnegie Institution for Science (Nov. 2014)
Columbia University, Walker Symposium (Dec. 2014)
RPI Physics Dept., "*The environment of earliest Earth: Decoding the oldest crystals"* (Mar. 2015)
Massachusetts Institute of Technology (Sept. 2015)
Syracuse University: "*Biosignatures in the metamorphic residue of life*" (Oct. 2017)
RPI Interplanetary Society: "*Ancient crystals and the early years of planet Earth*" (Dec. 2017)
University of Chicago, Symposium on Chemical Diffusion (Apr. 2018)
Albany Area Amateur Astronomers (Apr. 2018)
RPI Undergraduate Research Symposium awards luncheon (keynote, May 2018)
Corning Glass Summit "*Fractionation of volatiles and their isotopes during bubble growth in magmas"* (keynote, June 2018)

CONTINUING ROLES at RPI beyond teaching

New York Center for Astrobiology; member 2009-present; Director 2016-2018
Center for Materials, Devices and Integrated Systems; member 2015-present

PHD STUDENTS

Mike Ackerson	Rinat Gabitov	Veronika Homolova	Daniel Moore	Lingbo Xing
John Ayers	John Hanchar	Amy Jurewicz	Robert Rapp	Xiaoyu Zhang
James Brenan	Leslie Hayden	Stephen Jurewicz	Dustin Trail	
Tobi Cohen	Christopher Hoff	Afina Lupulescu	Edward Vicenzi	
Marc Fortin	Megan Holycross	William Minarik	Heather Watson	

E.BRUCE WATSON
PUBLICATIONS

Refereed articles and book chapters

1. E.B. Watson (1976) Two-liquid partition coefficients: Experimental data and geochemical implications. *Contrib. Mineral. Petrol*. **56**, 119-134.

2. E.B. Watson (1976) Glass inclusions as samples of early magmatic liquid: determinative method and application to a South Atlantic basalt. *J. Volcanol. Geotherm. Res*. **1**, 73-84.

3. E.B. Watson (1977) Partitioning of manganese between forsterite and silicate liquid. *Geochim. Cosmochim. Acta* **41**, 1363-1374.

4. J.S. Dickey, F.A. Frey, S.R. Hart, E.B. Watson and G. Thompson (1977) Geochemistry and petrology of dredged basalts from the Bouvet triple junction. *Geochim. Cosmochim. Acta* **41**, 1105-1118.

5. E.B. Watson (1979) Calcium diffusion in a simple silicate melt to 30 kbar. *Geochim. Cosmochim. Acta* **43**, 313-322.

6. E.B. Watson (1979) Calcium content of forsterite coexisting with silicate melt in the system Na_2O-CaO-MgO-Al_2O_3-SiO_2. *Am. Mineral.* **64**, 824-829.

7. E.B. Watson (1979) Diffusion of cesium ions in H_2O-saturated granitic melt. *Science* **205**, 1259-1260.

8. E.B. Watson (1979) Zircon saturation in felsic liquids: experimental data and applications to trace element geochemistry. *Contrib. Mineral. Petrol*. **70**, 407-419.

9. E.B. Watson (1979) Apatite saturation in basic to intermediate magmas. *Geophys. Res. Lett.* **6**, 937-940.

10. E.B. Watson (1980) Some experimentally-determined zircon/liquid partition coefficients for the rare earth elements. *Geochim. Cosmochim. Acta* **44**, 895-897.

11. E.B. Watson (1980) Apatite and phosphorus in mantle source regions: an experimental study of apatite/melt equilibria at pressures to 25 kbar. *Earth Planet. Sci. Lett*. **51**, 322-335.

12. M. Takata, M. Tomozawa and E.B. Watson (1980) Electrical conductivity of Na_2O-$3SiO_2$ glasses with high water content. *J. Am. Ceram. Soc*. **63**(11-12), 710-712.

13. E.B. Watson (1981) Diffusion in magmas at depth in the Earth: The effects of pressure and dissolved H_2O. Earth Planet. Sci. Lett. **52**, 291-301.

14. E.B. Watson and C.J. Capobianco (1981) Phosphorus and the rare earth elements in felsic magmas: an assessment of the role of apatite. Geochim. Cosmochim. Acta **45**, 2349-2358.

15. E.B. Watson and T.H. Green (1981) Apatite/liquid partition coefficients for the rare earth elements and strontium. *Earth Planet. Sci. Lett*. **56**, 405-421.

16. E.B. Watson (1982) Melt infiltration and magma evolution. *Geology* **10**, 236-240.

17. T.H. Green and E.B. Watson (1982) Crystallization of apatite in natural magmas under high-pressure, hydrous conditions, with particular reference to 'orogenic' rock series. *Contrib. Mineral. Petrol.* **79**, 96-105.

18. C.J. Capobianco and E.B. Watson (1982) Olivine/silicate melt partitioning of germanium: An example of a nearly constant partition coefficient. *Geochim. Cosmochim. Acta* **46**, 235-240.

19. M. Takata, J. Acocella, M. Tomozawa and E.B. Watson (1982) Effect of water content on the electrical conductivity of Na_2O-$3SiO_2$ glass. *J. Am. Ceram. Soc.* **65**, 182-183.

20. E.B. Watson (1982) Basalt contamination by continental crust: Some experiments and models. *Contrib. Mineral. Petrol*. **80**, 73-87.

21. E.B. Watson, M. Sneeringer and A. Ross (1982) Diffusion of dissolved carbonate in magmas: Experimental results and applications. *Earth Planet. Sci. Lett.* **61**, 346-358.

22. E.B. Watson and T.M. Harrison (1983) Zircon saturation revisited: temperature and composition effects in a variety of crustal magma types. *Earth Planet. Sci. Lett* **64**, 295-304.

23. T.M. Harrison and E.B. Watson (1983) Kinetics of zircon dissolution and zirconium diffusion in granitic melts of variable water content. *Contrib. Mineral. Petrol*. **84**, 67-72.

24. E.B. Watson and T.M. Harrison (1984) Accessory minerals and the geochemical evolution of crustal magmatic systems: a summary and prospectus of experimental approaches. *Phys. Earth Planet. Int.* **35**, 19-30.

25. S.R. Jurewicz and E.B. Watson (1984) Melt coalescence in a felsic system: The importance of surface energy. *Contrib. Mineral. Petrol*. **85**, 25-29.

26. E.B. Watson and S.R. Jurewicz (1984) Behavior of alkalies during diffusive interaction of granitic xenoliths with basaltic magma. *J. Geol.* **92**, 121-131.

27. E.B. Watson and T.M. Harrison (1984) What can accessory minerals tell us about felsic magma evolution?: A framework for experimental study. *Proc. 27th International Geol. Congress* **11**, 503-520.

28. J. Acocella, M. Tomozawa, E.B. Watson (1984) The nagture of dissolved water in sodium silicate glasses and its effect on various properties. *J. Non-Crystalline Solids* **65**, 355-372.

29. T.M. Harrison and E.B. Watson (1984) The behavior of apatite during crustal anatexis: Equilibrium and kinetic considerations. *Geochim. Cosmochim. Acta* **48**, 1467-1477.

30. M.A. Sneeringer and E.B. Watson (1985) Milk cartons and ash cans: Two unconventional welding techniques for noble metal containers. *Am. Mineral.* **70**, 200-201.

31. E.B. Watson (1985) Henry's law behavior in simple systems and in magmas: Criteria for distinguishing concentration-dependent partition coefficients in nature. *Geochim. Cosmochim. Acta* **49**, 917-923.

32. E.B. Watson, T.M. Harrison and F.J. Ryerson (1985) Diffusion of Sm, Sr and Pb in fluorapatite. *Geochim. Cosmochim. Acta* **49**, 1813-1823.

33. S.R. Jurewicz and E.B. Watson (1985) The distribution of partial melt in a granitic system: The application of liquid-phase sintering theory. *Geochim. Cosmochim. Acta* **49**, 1109-1122.

34. R.P. Rapp and E.B. Watson (1986) Monazite solubility and dissolution kinetics: Implications for the thorium and light rare earth chemistry of felsic magmas. *Contrib. Mineral. Petrol.* **94**, 304-316.

35. E.B. Watson (1986) Immobility of reduced carbon along grain boundaries in dunite. *Geophys. Res. Lett.* **13**, 529-532.

36. E.B. Watson (1986) An experimental study of oxygen transport in dry rocks and related kinetic phenomena. *J. Geophys. Res.* **91**, 14117-14131.

37. E.B. Watson (1987) Solubility and diffusivity of C in Pt. *Am. Mineral.* **72**, 487-490.

38. E.B. Watson and F.J. Ryerson (1986) Partitioning of zirconium between clinopyroxene and magmatic liquids of intermediate composition. *Geochim. Cosmochim. Acta* **50**, 2523-2526.

39. E.B. Watson, D. Ben Othman, J.-M. Luck and A.W. Hofmann (1987) Partitioning of U, Pb, Cs, Yb, Hf, Re and Os between chromian diopsidic pyroxene and haplobasaltic liquid. *Chem. Geol.* **62**, 191-208.

40. F.J. Ryerson and E.B. Watson (1987) Rutile saturation in magmas: implications for Ti-Nb-Ta depletion in orogenic rock series. *Earth Planet. Sci. Lett.* **86**, 225.

41. E.B. Watson and J.M. Brenan (1987) Fluids in the lithosphere. 1. Experimentally-determined wetting characteristics of CO_2-H_2O fluids and their implications for fluid transport, host-rock physical properties, and fluid inclusion formation, *Earth Planet. Sci. Lett.* **85**, 497-515.

42. A.J.G. Jurewicz and E.B. Watson (1988) Cations in olivine, part 1: Calcium partitioning and calcium/magnesium distribution between olivines and coexisting melts, with petrologic applications. *Contrib. Mineral. Petrol*. **99**, 176-185.

43. A.J.G. Jurewicz and E.B. Watson (1988) Cations in olivine, part 2: Diffusion in olivine xenocrysts, with applications to petrology and mineral physics. *Contrib. Mineral. Petrol*. **99**, 186-201.

44. J.M. Brenan and E.B. Watson (1988) Fluids in the lithosphere, part 2: Experimental constraints on CO_2 transport in dunite and quartzite at elevated P-T conditions with implications for mantle and crustal decarbonation processes. *Earth Planet. Sci. Lett.* **91**, 141-158.

45. D.R. Baker and E.B. Watson (1988) Diffusion of major and trace elements in compositionally-complex Cl- and F-bearing silicate melts. *J. Non-Cryst. Solids* **102**, 62-70.

46. C.F. Miller, E.B. Watson and T.M. Harrison (1988) Perspectives on the source, segregation and transport of granitic magmas. *Trans. Roy. Soc. Edinburgh* **79**, 135-156.

47. D. Walker, S. Jurewicz and E.B. Watson (1988) Adcumulus dunite growth in a laboratory thermal gradient. *Contrib. Mineral. Petrol*. **99**, 306-319.

48. E.B. Watson, E.P. Vicenzi and R.P. Rapp (1989) Inclusion/host relations involving accessory minerals in high-grade metamorphic and anatectic rocks. *Contrib. Mineral. Petrol*. **101**, 220-231.

49. E.B. Watson, J.M. Brenan and D.R. Baker (1990) Distribution of fluids in the continental mantle. In *Continental Mantle*, M.A. Menzies, Ed., pp. 111-125, Clarendon Press, Oxford.

50. E.B. Watson and D.R. Baker (1991) Chemical diffusion in magmas: An overview of experimental results and geochemical applications. In *Advances in Physical Geochemistry*, vol. 9, I. Kushiro and L. Perchuk, Eds. Springer-Verlag.

51. R.P. Rapp, E.B. Watson and C.F. Miller (1991) Partial melting of amphibolite/eclogite and the origin of Archean trondhjemites and tonalites. *Precambrian Research* **51**, 1-25.

52. E.B. Watson (1991) Diffusion in fluid-bearing and slightly-melted rocks: experimental and numerical approaches illustrated by iron transport in dunite. *Contrib. Mineral. Petrol*. **107**, 417-434.

53. E.B. Watson (1991) Diffusion of dissolved CO_2 and Cl in hydrous silicic to intermediate magmas. *Geochimica et Cosmochimica Acta* **55**, 1897-1902.

54. D. Laporte and E.B. Watson (1991) direct observation of near-equilibrium pore geometry in synthetic crustal lithologies. *J. Geol.* **99**, 873-878.

55. J.M. Brenan and E.B. Watson (1991) Partitioning of trace elements between carbonate melt and clinopyroxene and olivine at mantle P-T conditions. *Geochim. Cosmochim. Acta* **55**, 2203-2214.

56. J.M. Brenan and E.B. Watson (1991) Partitioning of trace elements between olivine and aqueous fluids at high P-T conditions: Implications for the effect of fluid composition on trace-element transport. *Earth Planet. Sci. Lett.* **107**, 672-688.

57. J.C. Ayers and E.B. Watson (1991) Solubility of apatite, monazite, zircon and rutile in supercritical aqueous fluids, with implications for subduction-zone geochemistry. *Phil Trans. Roy. Soc. Lond. A* **335**, 365-375.

58. D.J. Cherniak and E.B. Watson (1992) A study of strontium diffusion in K-feldspar, Na-K feldspar and anorthite using Rutherford Backscattering Spectroscopy. *Earth Planet. Sci. Lett.* **113**, 411-425.

59. J.C. Ayers, J.M. Brenan, E.B. Watson, D.A. Wark and W.G. Minarik (1992) A new capsule technique for hydrothermal experiments using the piston-cylinder apparatus, *Am. Mineral*. **77**, 1080-1086.

60. J.C. Ayers and E.B. Watson (1993) Rutile solubility in supercritical aqueous fluids and the high P-T mobility of elements it concentrates. *Contrib. Mineral. Petrol.* **114**, 321-330.

61. J.C. Ayers and E.B. Watson (1993) Apatite/fluid partitioning of rare earth elements and strontium. *Chem. Geol.* **110**, 299-314.

62. E.B. Watson and A. Lupulescu (1993) Aqueous fluid connectivity and chemical transport in clinopyroxene-rich rocks. *Earth Planet. Sci. Lett*. **117**, 279-294.

63. P. Beattie, M. Drake, J. Jones, W. Leeman, J. Longhi, G. McKay, R. Nielsen, H. Palme, D. Shaw, E. Takahashi and E.B. Watson (1993) Terminology for trace-element partitioning. *Geochim. Cosmochim. Acta* **57**, 1605-1606.

64. Y. Liang, F.M. Richter and E.B. Watson (1994) Convection in multicomponent silicate melts driven by coupled diffusion. *Nature* **369**, 390-392.

65. T. Skulski, W. Minarik and E.B. Watson (1994) High-pressure experimental trace element partitioning between clinopyroxene and basaltic melts. *Chem. Geol.* **117**, 127-147.

66. E.B. Watson (1994) *Diffusion in volatile-bearing magmas*. In: Volatiles in Magmas, pp. 371-411 (Reviews in Mineralogy, vol. 30, M.R. Carroll and J.R. Holloway, Eds.), Mineralogical Society of America, Washington D.C.

67. D.J. Cherniak and E.B. Watson (1994) A study of strontium diffusion in plagioclase using Rutherford backscattering spectroscopy. *Geochim. Cosmochim. Acta* **58**, 5179-5190.

68. E.B. Watson and Y. Liang (1995) A simple model for sector zoning in slowly-grown crystals: Implications for growth rate and lattice diffusion, with emphasis on accessory minerals in crustal rocks. *Am. Mineral.* **80**, 1170-1187.

69. D. Laporte and E.B. Watson (1995) Experimental and theoretical constraints on melt distribution in crustal sources: The effect of crystalline anisotropy on melt interconnectivity. *Chem. Geol.* **124**, 161-184.

70. R.P. Rapp and E.B. Watson (1995) Dehydration melting of metabasalt at 8-32 kbar: Implications for continental growth and crust-mantle recycling. *J. Petrol.* **36**, 891-931.

71. W.G. Minarik and E.B. Watson (1995) Interconnectivity of carbonate melt at low melt fraction. *Earth Planet. Sci. Lett.* **133**, 423-437.

72. W.G. Minarik, F.J. Ryerson, E.B. Watson (1996) Textural entrapment of core-forming melts. *Science* **272**, 530-533.

73. E.B. Watson (1996) Dissolution, growth and survival of zircons during crustal fusion: Kinetic principles, geologic models and implications for isotopic inheritance. *Proc. Roy. Soc. Edinburgh* **87**, 43-56.

74. Y. Liang, F.M. Richter, A. Davis and E.B. Watson (1996) Diffusion in silicate melts: I. Self diffusion in CaO-Al_2O_3-SiO_2 at 1500°C and 1 GPa. *Geochim. Cosmochim. Acta* **60**, 4353-4368.

75. Y. Liang, F.M. Richter and E.B. Watson (1996) Diffusion in silicate melts: II. Multicomponent chemical diffusion in CaO-Al_2O_3-SiO_2 at 1500°C and 1 GPa. *Geochim. Cosmochim. Acta* **60**, 5021-5036.

76. E.B. Watson (1996) Surface enrichment and trace-element uptake during crystal growth. *Geochim. Cosmochim. Acta* **60**, 5013-5020.

77. D.J. Cherniak, J.M. Hanchar and E.B. Watson (1996) Rare earth diffusion in zircon. *Chem. Geol.* **136**, 289-301.

78. D.J. Cherniak, J.M. Hanchar and E.B. Watson (1997) Diffusion of tetravalent cations in zircon. *Contrib. Mineral. Petrol.* **127**, 383-390.

79. E.B. Watson and D.J. Cherniak (1997) Oxygen diffusion in zircon. *Earth Planet. Sci. Lett.* **148**, 527-544.

80. E.B. Watson, D.J. Cherniak, J.M. Hanchar, T.M. Harrison and D.A. Wark (1997) The incorporation of Pb into zircon. *Chem. Geol.* **141**, 19-31.

81. E.B. Watson and D.A. Wark (1997) Diffusion of dissolved SiO_2 in H_2O at 1 GPa, with implications for mass transport in the crust and upper mantle. *Contrib. Mineral. Petrol.* **130**, 66-80.

82. D.K. Moore, D.J. Cherniak and E.B. Watson (1998) Oxygen diffusion in rutile from 750 to 1000°C and 0.1 to 1000 MPa. *Am. Mineral.* **83**, 700-711.

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