

JANE SELVERSTONE

Retired from Department of Earth and Planetary Sciences
University of New Mexico
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PERSONAL INFORMATION

Born July 6, 1956 in Cambridge, Massachusetts
Married to David S. Gutzler

RESEARCH INTERESTS

Application of petrologic and geochemical techniques to interpretation of tectonic processes. Determination of pressure-temperature-time-deformation paths. Relationships between fluid-rock interaction and deformation. Feedback effects between metamorphic reactions and deformation mechanisms. Use of mantle and crustal xenoliths to document lithospheric evolution. Chlorine stable isotope geochemistry. Subduction-zone processes.

EDUCATION

A.B.	1978	Princeton University, summa cum laude in Geological Sciences
M.S.	1981	University of Colorado at Boulder, Geological Sciences
Ph.D.	1985	Massachusetts Institute of Technology, Earth Sciences

PROFESSIONAL EXPERIENCE

2010 -	University of New Mexico: Professor Emerita, Earth & Planetary Sciences
2000 - 2010	University of New Mexico: Professor, Earth & Planetary Sciences
1995 - 2000	University of New Mexico: Associate Professor
1992 - 1995	University of Colorado: Research Associate Professor
1990 - 1992	Harvard University: John L. Loeb Associate Professor of Natural Sciences
1986 - 1989	Harvard University: Assistant Professor
1985 - 1986	University of Colorado: Assistant Professor Adjunct
1978 - 1981	U.S.G.S., Branch of Central Mineral Resources: Field/Research Assistant

HONORS AND AWARDS

Daly Lecturer, Volcanology, Geochemistry, & Petrology Section, American Geophysical Union, 2014
Fellow, American Geophysical Union, elected 2012
New Mexico Network for Women in Science and Engineering Impact Award, 2011
Outstanding Teacher of the Year Award, University of New Mexico, 2007
Fellow, Geological Society of America, elected 2003
Gunter Starkey Award for Teaching Excellence, University of New Mexico, 2001
Regents' Lecturer, University of New Mexico, 1998-2001
Fellow, Mineralogical Society of America, elected 1994
Editors' Citation for Excellence in Refereeing, *Tectonics*, 1993
Mineralogical Society of America Distinguished Lecturer, 1992-1993
National Science Foundation Presidential Young Investigator Award, 1987-1992
Shell Dissertation Fellowship, MIT, 1983-1985
National Science Foundation Graduate Fellowship, 1980-1983
Waldrop Award for Geological Research, University of Colorado, 1981
Buddington Award in Geology, Princeton University, 1978

PROFESSIONAL ACTIVITIES

American Geophysical Union VGP Fellows nomination committee, 2013-2014
 Advisory Board, European Union Training Program on plate interfaces in subduction zones, 2012-2014
 Geological Society of America Young Scientist Award (Donath Medal) committee, 2009-2010
 NSF Committee of Visitors, Deep Earth Processes section, 2008
 Mineralogical Society of America, Dana Medal committee, 2007-2009
 American Geophysical Union, VGP nominations committee, 2007
 External Review Board, Geosciences Department, Boise State University, 2006
 Member of steering committee for EarthScope Workshop, 2006
 Technical Program Chair for Geological Society of America Annual Meeting, 2004
 Geological Society of America, Annual Program Committee, 2003-2005
 Sabbatical leave at Brown University, Fall 2002
 Geological Soc. of Amer. Structural Geology & Tectonics Division: vice-chair, 1998-1999; chair 2000
 Geological Society of America Committee on Nominations, 2000
 Chair, American Geophysical Union search committee for new editor of *Tectonics*, 1999
 NSF Tectonics Program, panel member, 1996-1999
 Coeditor, *Journal of Metamorphic Geology*, 1993-1997; member of editorial board, 1997-2012.
 Editorial Board for *Geology*, 1989-1994, 2008-2010
 NSF Committee of Visitors, Petrology and Geochemistry program, 1993
 Mineralogical Society of America Committee on Lecturers, 1993-1996
 Mineralogical Society of America Award Committee, 1994-1995
 Mineralogical Society of America Short Course Committee, 1987-1990 (chair '88-'90)
 University of Colorado Geological Sciences Advisory Board, 1988-1991

COURSES TAUGHT AT UNM

Introductory Geology
 Igneous and Metamorphic Petrology
 Alpine-Himalayan Tectonics
 Metamorphic Processes
 Various graduate seminars (Mantle and Crustal Xenoliths, Fluids in the Crust, Lithospheric Evolution)

DEPARTMENT AND UNIVERSITY SERVICE AT UNM

Promotion and Tenure Committee, College of Arts & Sciences – 2008-2009
 Faculty and Staff Benefits Committee – 2006-2007
 Research Allocations Committee
 Committee to select Regents' Lecturers
 Committee to select recipients of Starkey teaching awards
 Undergraduate committee (EPS Dept)
 Graduate committee, member and chair (EPS Dept)
 Graduate advisor (EPS Dept)
 Long-range planning committee (EPS Dept)
 Various faculty search committees (EPS Dept)

COMMUNITY INVOLVEMENT

Occasional judge at local and regional science fairs
 Advocacy efforts for developmentally disabled individuals
 Violinist and former board member, Albuquerque Philharmonic Orchestra, 2011-2025
 Participant or Juror, Annual New Mexico Photographic Art Show, 2018-present
 Volunteer, Rio Grande Food Project, 2021

STUDENTS AND POSTDOCS SUPERVISED (or co-supervised)

Senior theses and independent study projects: Ximena Barrientos, Andrew Hargens, John Arnason, Gillian Salton, Kathy Zanetti, Laura Pletsch-Rivera, Michael Gabora, Aaron Cavosie, Elizabeth Lucky, Doug Raszewski, Eric Wilkins, Diana Strickland, Eileen Embid, James Hyatt, Nicole Zayas, Beth Snesko, Ana Moreno, Erik Jung, Kym Samuels, Johanna Blake, Melissa Noel Gill, William Woodruff.

Masters students: John-Mark Staude, Colin Shaw, Meghan Hodgins, Mary Simmons (co-advisor), Aaron Cavosie, Kurt Steffen, Jaime Barnes (NSF Fellow), George Perkins, Courtney Porreca, Caitlin Callahan, Alexis Ault (NSF Fellow), Amber Hawkins, Melissa Halick; committee member for >30 other MS students.

PhD students: Ximena Barrientos, Timothy Wawrzyniec, Kurt Steffen, Jaime Barnes (co-advisor); committee member for >20 other PhD students.

Postdocs: Pascal Philippot, Stephen Getty, Aurora Pun

RESEARCH FUNDING

Integrated structural, isotopic, and petrologic studies of the eastern margin of the Seven Devils Terrane, west-central Idaho

National Science Foundation, 11/1/86-12/31/88, \$28,000

A petrologic and structural study of the unroofing history of the Tauern Window, Eastern Alps,

National Science Foundation, 7/15/86-12/31/88, \$31,000

Metamorphic studies of tectonic processes, *Presidential Young Investigator Award*

National Science Foundation, 7/1/87-12/31/92, \$146,000

An investigation of the effects of fluid immiscibility on subduction zone metamorphism

National Science Foundation, 1/1/89-12/31/90, \$80,000

An investigation of fluid-rock interactions during subduction-zone metamorphism

National Science Foundation, 1/1/91-6/30/93, \$100,400

Mechanics of footwall uplift during detachment faulting: A field test of kinematic and dynamic models

With Gary Axen and John Bartley

National Science Foundation, 7/1/92-6/30/94, \$65,000 to Selverstone

Metamorphic and isotopic constraints on Early Proterozoic tectonism in the Colorado Front Range

National Science Foundation, 7/1/94-6/30/97, \$163,000

Evolution of Early Proterozoic continental crust: Constraints from xenoliths of the Navajo volcanic field

With Kent Condie and W. Randall Van Schmus

National Science Foundation, 7/1/94-6/30/96, \$47,000 to Selverstone

Integrated structural and fluid inclusion study of rolling hinges and low-angle normal faults in metamorphic core complexes

With Gary Axen and John Bartley

National Science Foundation, 1/1/96-12/31/98, \$91,303 to Selverstone

Proterozoic assembly of the northern Colorado Front Range

National Science Foundation, 6/1/98-5/31/00, \$128,000

Geomorphic and geodynamic response to extension in convergent orogens

With Frank Pazzaglia and Mousumi Roy

National Science Foundation, 7/1/99-6/30/01, \$38,743 to Roy and Selverstone

Interactions between deformation and metamorphism: Controls on shear zone rheology and metamorphic memory

Jane Selverstone and Adrian Brearley

National Science Foundation, 6/1/00-12/31/04, \$143,608

Acquisition of an electron microprobe

A. Brearley, M. Spilde, J. Selverstone, L. Crossey, K. Karlstrom

National Science Foundation, \$280,000; 4/15/02-4/14/04

Deformation rates and kinematics of ancient and active displacement transfer, Central Walker Lane, western Great Basin

John Oldow, William McClelland, John Geissman, Jane Selverstone

National Science Foundation, 6/15/02-5/31/05, \$93,282 to Geissman and Selverstone

Mantle and crustal xenoliths of the Puerco Necks, NM: Constraints on lithospheric evolution at the transition between the Colorado Plateau and Rio Grande Rift

Jane Selverstone, Adrian Brearley, Zachary Sharp

National Science Foundation, 1/1/03-12/31/06, \$194,652

Serpentinites as carriers of chlorine into the mantle

Zachary Sharp, Jane Selverstone, Adrian Brearley

National Science Foundation, 6/1/03-5/31/07, \$144,320

Acquisition of an ICP-OES for geoscience research at the University of New Mexico

L. Crossey, A.M. Ali, T. Fischer, Y. Asmerom, Jane Selverstone

National Science Foundation, \$210,832; 1/1/05-12/31/05

Collaborative research: Metamorphic fluid evolution and rock rheology

Jane Selverstone, Jan Tullis, Adrian Brearley

National Science Foundation, \$131,740 to Selverstone; 6/1/05-5/31/08

Collaborative research: What is the Strength of Low-Angle Normal Faults?

Gary J. Axen, Jane Selverstone

National Science Foundation, \$148,564 to Selverstone; 6/1/08-5/31/12

Linked isotopic (Cl, O, H) and petrologic studies of fluid-rock interaction during the subduction cycle

Jane Selverstone, Zachary Sharp

National Science Foundation, \$270,002; 7/1/09-6/30/12

Controls on the chlorine isotope composition of sedimentary rocks during prograde metamorphism, with implications for mantle chloride sources

Jane Selverstone, Zachary Sharp

National Science Foundation, \$190,024; 6/1/12-5/3/14

INVITED PRESENTATIONS

Princeton University, 1983
 University of New Hampshire, 1984
 Technische Universität München, 1984
 Technische Universität Berlin, 1984
 Univ. of California at Berkeley, 1984
 Virginia Polytechnic Institute, 1984
 University of Colorado, 1984
 Princeton University, 1985
 McGill University, 1985
 Middlebury College, 1985
 Harvard University, 1985
 Brown University, 1985
 U. S. Geological Survey, 1986
 Dartmouth College, 1986
 Colorado College, 1986
 University of Rochester, 1987
 Harvard Univ. Earth Science bicentennial, 1988
 University of Massachusetts, 1988
 University of Connecticut, 1989
 Pennsylvania State University, 1989
 University of Colorado, 1989
 Lamont-Doherty Geological Observatory, 1989
 AGU symposium on metasomatism, 1989
 Goldschmidt symp. on subduction fluids, 1990
 Univ. of Maine AWG speaker, 1991
 Harvard University, 1991
 Swiss Geological Society, 1992
 ETH Zürich, 1992
 CNRS / Université de Paris, 1992
 Utah State University, 1992
 Fort Lewis College, 1992
 University of Utah, 1992
 University of Colorado, 1992
 University of Northern Colorado, 1993
 University of Missouri, 1993
 Washington University of St. Louis, 1993
 University of Kansas, 1993
 University of Washington, 1993
 Western Washington University, 1993
 University of British Columbia, 1993
 Univ. of Wisconsin Weeks lecturer, 1993
 Dartmouth College, 1993
 University of Wyoming, 1993
 GSA symposium on crustal fluids, 1993
 Colorado School of Mines, 1994
 U. S. Geological Survey, 1994
 California Institute of Technology, 1994
 University of New Mexico, 1994
 New Mexico Tech, 1995
 University of Texas at Austin, 1996
 Arizona State University, 1996
 Penrose conference on exhumation, 1996
 Gordon conference on rock deformation, 1997
 GSA symposium on exhumation, 1997
 New Mexico Tech, 1997
 Massachusetts Institute of Technology, 1998
 GSA symp. on steady-state mountains, 1999
 New Mexico State University, 2000
 Technische Universität München, 2000
 University of Arizona, 2000
 GSA topical session on xenoliths, 2000
 Woods Hole Oceanographic Institute, 2001
 Brown University, 2002
 Princeton University, 2002
 NSF-NAGT workshop, Teaching Petrology, 2003
 University of Kansas, 2004
 Massachusetts Institute of Technology, 2004
 Boston University Simpson lecture, 2005
 New Mexico Tech, 2006
 AGU symposium on chemistry & deformation, 2006
 University of Southern California, 2008
 Smith College/Five Colleges Lecturer, 2010
 UNM Gallup Campus, 2011
 International Lithosphere Project workshop, 2011
 Sigma Xi public lecture, 2011
 AGU symposium on fault rocks, 2011
 University of Colorado, 2012
 AGU Daly Lecture, 2014
 Utah State University, 2015

PUBLICATIONS IN REFEREED JOURNALS

(* = graduate student coauthor; ** = undergraduate coauthor)

1. Selverstone, J. and Hollister, L.S., 1980. Cordierite-bearing granulites from the Coast Ranges, British Columbia: P-T conditions of metamorphism. *Can. Mineral.* 18, 119-129.
2. Selverstone, J., 1982. Fluid inclusions as petrogenetic indicators in granulite xenoliths, Pali-Aike volcanic field, Chile. *Contrib. Mineral. Petrol.* 79, 28-36.
3. Selverstone, J. and Stern, C.R., 1983. Petrochemistry and recrystallization history of granulite xenoliths from the Pali-Aike volcanic field, Chile. *Amer. Mineral.* 68, 1102-1112.
4. Spear, F.S. and Selverstone, J., 1983a. Water exsolution from quartz: Implications for the generation of retrograde metamorphic fluids. *Geology* 11, 82-85.
5. Spear, F.S. and Selverstone, J., 1983b. Quantitative P-T paths from zoned minerals: theory and tectonic applications. *Contrib. Mineral. Petrol.* 83, 348-357.
6. Spear, F.S., Selverstone, J., Hickmott, D., Crowley, P., and Hodges, K., 1984. P-T paths from garnet zoning: a new technique for deciphering tectonic processes in crystalline terranes. *Geology* 12, 87-90.
7. Selverstone, J., Spear, F.S., Franz, G., and Morteani, G., 1984. High-pressure metamorphism in the SW Tauern Window, Austria: P-T paths from hornblende-kyanite-staurolite schists. *J. Petrol.* 25, 501-531.
8. Spear, F.S., Selverstone, J., Hickmott, D., Crowley, P., and Hodges, K., 1985. P-T paths from garnet zoning. Reply. *Geology* 13, 81.
9. Selverstone, J., and Spear, F.S., 1985. Metamorphic P-T paths from pelitic schists and greenstones in the southwest Tauern Window, Eastern Alps. *J. Meta. Geol.* 3, 439-465.
10. Selverstone, J., 1985. Petrologic constraints on imbrication, metamorphism, and uplift in the SW Tauern Window, Eastern Alps. *Tectonics* 4, 687-704.
11. Hickmott, D., Shimizu, N., Spear, F.S., and Selverstone, J., 1987. Trace element zoning in metamorphic garnet. *Geology* 15, 573-576.
12. Selverstone, J. and Munoz, J.L., 1987. Fluid heterogeneities and hornblende stability in interlayered graphitic and nongraphitic schists (Tauern Window, Eastern Alps). *Contrib. Mineral. Petrol.* 96, 426-440.
13. Barrientos, X.* and Selverstone, J., 1987. Metamorphosed soils as stratigraphic indicators in deformed terranes: an example from the Eastern Alps. *Geology* 15, 841-844.
14. Selverstone, J., 1988. Evidence for east-west crustal extension in the Eastern Alps: implications for the unroofing history of the Tauern Window. *Tectonics* 7, 87-105.
15. Barrientos, X.* and Selverstone, J., 1988. Metamorphosed soils as stratigraphic indicators in deformed terranes: reply. *Geology* 16, 572.
16. Holm, D.K.* and Selverstone, J., 1990. Rapid growth and strain rates inferred from synkinematic garnets, Penokean orogeny, Minnesota. *Geology* 18, 166-169.
17. Selverstone, J. and Chamberlain, C.P., 1990. Apparent isobaric cooling paths from granulite terrains: two counterexamples from British Columbia and New Hampshire. *Geology* 18, 301-310.
18. Spear, F.S., Hickmott, D., and Selverstone, J., 1990. Metamorphic consequences of thrust emplacement, Fall Mountain, New Hampshire. *Geol. Soc. Amer. Bull.* 102, 1344-1360.
19. Philippot, P. and Selverstone, J., 1991. Trace-element-rich brines in eclogitic veins: implications for fluid composition and transport during subduction. *Contrib. Mineral. Petrol.* 106, 417-430.
20. Selverstone, J., Morteani, G., and Staude, J.-M.*, 1991. Fluid channeling during ductile shearing: transformation of granodiorite into aluminous schist in the Tauern Window, Eastern Alps. *J. metamorphic Geol.* 9, 419-431.
21. Selverstone, J., Wernicke, B., and Aliberti, E.*, 1992. Intracontinental subduction and hinged unroofing along the Salmon River suture zone, west-central Idaho. *Tectonics* 11, 124-144.
22. Franz, G. and Selverstone, J., 1992. An empirical phase diagram for epidote in the system $\text{Ca}_2\text{Al}_3\text{Si}_3\text{O}_{12}(\text{OH}) - \text{Ca}_2\text{FeAl}_2\text{Si}_3\text{O}_{12}(\text{OH})$. *Amer. Mineral.* 77, 631-642.

23. Fryxell, J., Salton, G.*, Selverstone, J., and Wernicke, B., 1992. Gold Butte crustal section, south Virgin Mountains, Nevada. *Tectonics* 11, 1099-1120.
24. Selverstone, J., Franz, G., Thomas, S.*, and Getty, S., 1992. Fluid variability in 2 GPa eclogites as an indicator of fluid behavior during subduction. *Contrib. Mineral. Petrol.* 112, 341-357.
25. Barrientos, X.* and Selverstone, J., 1993. Infiltration vs. thermal overprinting of epidote blueschists, Ile de Groix, France. *Geology* 21, 69-72.
26. Selverstone, J., 1993. Micro- to macro-scale interactions between deformation and metamorphism, Tauern Window, Eastern Alps. *Schweiz. Mineral. Petrogr. Mitt.* 73, 229-239 (invited).
27. Selverstone, J. and Gutzler, D.S., 1993. Post-125 Ma carbon storage associated with continent-continent collision. *Geology* 21, 885-888.
28. Getty, S., Selverstone, J., Wernicke, B., Jacobsen, S., Aliberti, E.*, and Lux, D., 1993. Sm-Nd dating of multiple garnet growth events in an arc-continent collision zone, northwestern U.S. Cordillera. *Contrib. Mineral. Petrol.* 115, 45-57.
29. Guidotti, C., Blencoe, J., Sassi, F., and Selverstone, J., 1994. The paragonite-muscovite solvus: I. P-T-X limits derived from the Na-K compositions of natural, quasibinary paragonite-muscovite pairs. *Geochim. Cosmochim. Acta* 58, 2269-2275.
30. Selverstone, J. and Gutzler, D.S., 1994. Post-125 Ma carbon storage associated with continent-continent collision: Reply. *Geology* 22, 382-383.
31. Christensen, J.*, Selverstone, J., Rosenfeld, J., and DePaolo, D., 1994. Correlation by Rb-Sr geochronology of garnet growth histories from different structural levels within the Tauern Window, Eastern Alps. *Contrib. Mineral. Petrol.* 118, 1-12.
32. Getty, S. and Selverstone, J., 1994. Stable isotopic and trace element evidence for restricted fluid migration in 2 GPa eclogites. *J. metamorphic Geol.* 12, 747-760.
33. Axen, G. and Selverstone, J., 1994. Stress state and fluid pressure levels on the Whipple detachment fault, California. *Geology* 22, 838-838.
34. Selverstone, J., Axen, G., and Bartley, J., 1995. Fluid inclusion constraints on the kinematics of footwall uplift beneath the Brenner Line normal fault, Eastern Alps. *Tectonics* 14, 264-278.
35. Axen, G., Bartley, J., and Selverstone, J., 1995. Structural expression of a rolling hinge in the footwall of the Brenner Line normal fault, Eastern Alps. *Tectonics* 14, 1380-1392.
36. Mattie, P.D.*, Condie, K.C., Selverstone, J., and Kyle, P.R., 1997. Origin of the lower continental crust in the Colorado Plateau: Geochemical evidence from mafic xenoliths from the Navajo Volcanic Field, SW United States. *Geochim. Cosmochim. Acta* 61, 2007-2021.
37. Selverstone, J., Hodgins, M.*, Shaw, C.*, Aleinikoff, J., and Fanning, C.M., 1997. Proterozoic tectonics of the northern Colorado Front Range, in D.W. Bolyard and S.A. Sonnenberg, eds., *Geologic History of the Colorado Front Range*. Rocky Mountain Association of Geologists, Denver, 9-18.
38. Cunningham, C.G., Rasmussen, J., Steven, T.A., Rye, R.O., Rowley, P.D., Romberger, S., and Selverstone, J., 1998. Hydrothermal uranium deposits containing molybdenum and fluorite in the Marysvale Volcanic Field, west-central Utah. *Mineralium Deposita* 33, 477-494.
39. Axen, G.J., Selverstone, J., Byrne, T., and Fletcher, J., 1998. If the strong crust leads, will the weak crust follow? *GSA Today* 8, no. 12, 1-8.
40. Lewis, C., Wernicke, B., Selverstone, J., and Bartley, J., 1999. Deep burial of the footwall of the northern Snake Range décollement, Nevada. *Geol. Soc. Amer. Bull.* 111, 39-51.
41. Shaw, C.*, Snee, L., Selverstone, J., and Reed, J.C., 1999. $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronology of Mesoproterozoic metamorphism in the Colorado Front Range. *J. Geol.* 107, 49-68.
42. Condie, K.C., Latysh, N.*, Kozuch, M.*, Van Schmus, W.R., and Selverstone, J., 1999. Geochemistry, Nd and Sr isotopes, and U/Pb zircon ages of granitoid and metasedimentary xenoliths from the Navajo Volcanic Field, Four Corners area, southwestern United States. *Chem. Geol.* 156, 95-133.

43. Selverstone, J., Pun, A., and Condie, K.C., 1999. Xenolithic evidence for Proterozoic crustal evolution beneath the Colorado Plateau. *Geol. Soc. Amer. Bull.* 111, 590-606.
44. Wawrzyniec, T.*, Selverstone, J., Axen, G.J., 1999. Correlations between fluid composition and deep-seated structural style in the footwall of the Simplon low-angle fault zone, Switzerland. *Geology* 27, 715-718.
45. Condie, K.C. and Selverstone, J., 1999. The crust of the Colorado Plateau: new views of an old arc. *J. Geol.* 107, 387-398.
46. Selverstone, J., Aleinikoff, J., Hodgins, M.*, and Fanning, C.M., 2000. Middle Proterozoic reactivation of an Early Proterozoic transcurrent boundary in the Colorado Front Range: Implications for ca. 1.7 and 1.4 Ga tectonism. *Rocky Mountain Geology* 35, 139-162.
47. Axen, G.J., Selverstone, J., Wawrzyniec, T.*, 2001. High-temperature embrittlement of extensional Alpine mylonite zones in the midcrustal ductile-brittle transition. *J. Geophys. Res.* 106, 4337-4348.
48. Steffen, K.*, Selverstone, J., and Brearley, A., 2001. Episodic weakening and strengthening during synmetamorphic deformation of a deep crustal shear zone in the Alps. In: Holdsworth, R.E., Strachan, R.A., Magloughlin, J.F., and Knipe, R.J., eds., The Nature and Tectonic Significance of Fault Zone Weakening, *Geol. Soc. London spec. publ.* 186, 141-156.
49. Wawrzyniec, T.*, Selverstone, J., and Axen, G.J., 2001. Styles of footwall uplift along the Simplon and Brenner normal fault systems, central and eastern Alps. *Tectonics* 20, 748-770.
50. Cavosie, A.*, Sharp, Z., and Selverstone, J., 2002. Co-existing aluminum silicates in quartz veins: A quantitative approach for determining andalusite-sillimanite equilibrium in natural samples using oxygen isotopes. *American Mineralogist* 87, 417-423.
51. Henry, D., Dutrow, B., and Selverstone, J., 2002. Compositional asymmetry in replacement tourmaline: An example from the Tauern Window, Eastern Alps. *Geological Materials Research* v4n2, 18 pp.
52. Cavosie, A.* and Selverstone, J., 2003. Early Proterozoic ophiolitic material in the Front Range of Colorado: Implications for crustal growth and subsequent fault reactivation. *Tectonics* 22, doi 10.1029/2001TC001325, 10-1 – 10-23.
53. Selverstone, J. and Hyatt, J.**., 2003. Chemical and physical responses to deformation in micaceous quartzites from the Tauern Window, Eastern Alps. *J. Metamorphic Geol.* 21, 335-345.
54. Strickland, D.,** Heizler, M.T., Selverstone, J., and Karlstrom, K.E., 2003. Proterozoic evolution of the Zuni Mountains, western New Mexico: Relationship to the Jemez Lineament and implications for a complex cooling history. In: Lucas, S.G., Semken, S.C., Berglof, W.R., and Ulmer-Scholle, D.S., eds., Geology of the Zuni Plateau, *NM Geological Society Guidebook* 54, 109-117.
55. Barnes, J.D.*, Selverstone, J., and Sharp, Z.D., 2004, Fluid-mediated strain localization during Alpine-age strike-slip deformation in the Eastern Alps. *J. Metamorphic Geol.* 22, 283-300.
56. Selverstone, J., 2005, Are the Alps Collapsing? *Ann. Rev. Earth Plan. Sci.* 33, 113-132 (*invited*).
57. Selverstone, J., 2005. Preferential embrittlement of graphitic schists during extensional unroofing in the Alps: the effect of fluid composition on rheology in low-permeability rocks. *J. Metamorphic Geol.* 23, 461-470.
58. Roy, M., MacCarthy, J.K.*, and Selverstone, J., 2005. Upper mantle structure beneath the eastern Colorado Plateau and Rio Grande rift revealed by Bouguer gravity, seismic velocities, and xenolith data. *Geochem. Geophys. Geosys.* 6, doi: 10.1029/2005GC001008.
59. Perkins, G.P.*, Sharp, Z.D., and Selverstone, J., 2006. Oxygen isotope evidence for subduction and rift-related mantle metasomatism. *Contrib. Mineral. Petrol.* Doi: 10.1007/s00410-006-0075-6, 18 pp.
60. Steffen, K.* and Selverstone, J., 2006. Retrieval of P-T information from shear zones: thermobarometric consequences of the interaction of deformation and metamorphism. *Contrib. Mineral. Petrol.* 151, 600-614, doi: 10.1007/s00410-006-0073-8.
61. Barnes, J.D.*, Selverstone, J., and Sharp, Z.D., 2006. Chlorine chemistry of serpentinites from Elba, Italy, as an indicator of fluid source and subsequent tectonic history. *Geochem. Geophys. Geosys.* 7, Q08015, doi:10.1029/2006GC001296

62. Porreca, C.A. *, Selverstone, J., and Samuels, K. **, 2006. Origin and modification of garnet pyroxenite xenoliths from the Rio Puerco volcanic field, New Mexico: a record of incipient lithospheric extension. *Geosphere* 2, 333-351, doi: 10.1130/GES00058.1.
63. Hawkins, A.H. *, Selverstone, J., Brearley, A.J. Beane, R., Ketcham, R.A., and Carlson, W.D., 2007, Origin and mechanical significance of honeycomb garnets in high-pressure metasedimentary rocks from the Tauern Window, eastern Alps. *J. Metamorphic Geol.* 25, 565-583.
64. Pazzaglia, F.J., Selverstone, J., Roy, M., Steffen, K. *, Newland, S. *, Knipsher, W. *, and Pearce, J. *, 2007, Geomorphic expression of extension in convergent orogens. *Tectonics*.
65. Ault, A.K. and Selverstone, J., 2008. Microtextural constraints on the relationships between fluid-rock reactions and deformation. *Contrib. Mineral. Petrol.*, doi:10.1007/s00410-008-0298.
66. Chernak, L. *, Hirth, G., Selverstone, J., Tullis, J., 2009. The effect of aqueous and carbonic fluids on the dislocation creep strength of quartz. *J. Geophys. Res.*, doi:10.1029/2008JB005884.
67. Selverstone, J. and Sharp, ZD, 2011, Chlorine isotope evidence for multicomponent mantle metasomatism in the Ivrea Zone. *Earth Plan. Sci. Lett.* 310, 429-440, doi:10.1016/j.epsl.2011.08.034.
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