

Curriculum Vitae

Terry L. Spell

CONTACT INFORMATION

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EDUCATION

- Ph.D. Geology, 1991, State University of New York, Albany, New York, Dissertation - "The application of microanalytical techniques in isotope geochemistry: 1. Single crystal $^{40}\text{Ar}/^{39}\text{Ar}$ dating of rhyolites in the Jemez Volcanic Field, New Mexico, with implications for evolution of the magma system. 2. Towards development of a laser microprobe Fourier transform mass spectrometer for U-Pb isotopic analysis of zircon", 275 p.
- M.S. Geology, 1987, New Mexico Institute of Mining and Technology, Socorro, New Mexico, Thesis - "Geochemistry of Valle Grande Member ring fracture rhyolites, Valles Caldera, New Mexico", 213 p.
- B.S. Geology, 1985, The University of West Georgia, Carrollton, Georgia, Senior Thesis - "Geology and geochemistry of rhyolites of the Helena Volcanic Field, Montana", 78 p.

GRADUATE AND POST-GRADUATE ADVISORS

Ian McDougall (Australian National University)
T. Mark Harrison (University of California - Los Angeles)
Stephen E. DeLong (State University of New York - Albany)
Philip R. Kyle (New Mexico Tech)

EMPLOYMENT HISTORY

2007 - Present: Associate Chair, Department of Geoscience, University of Nevada, Las Vegas
2002 - Present: Associate Professor, Department of Geoscience, University of Nevada, Las Vegas
1997 - Present: Director of the Nevada Isotope Geochronology Laboratory
1996 - 2002: Assistant Professor, Department of Geoscience, University of Nevada, Las Vegas
1994 - 1996: Research Assistant Professor, Department of Geosciences, University of Houston
1991 - 1994: Postdoctoral Fellow, Isotope Geochemistry Group, Research School of Earth Sciences, The Australian National University
1987 - 1991: Research/Teaching Assistant, Department of Geological Sciences, State University of New York at Albany, taught undergraduate labs in optical mineralogy, petrology and physical geology
1985 - 1987: Teaching Assistant, Department of Geosciences, New Mexico Tech, taught undergraduate labs in mineralogy, optical mineralogy, and petrology
1983 - 1985: Laboratory Technician, Department of Geology, State University of West Georgia

RESEARCH INTERESTS

My research interests fall into three general areas; volcanology, thermochronology and development/intercalibration of isotopic dating techniques. Common to all of these areas of research is $^{40}\text{Ar}/^{39}\text{Ar}$ dating involving operations of the Nevada Isotope Geochronology Laboratory here at UNLV.

Large continental volcanic centers often generate shallow silicic magma bodies that produce caldera-forming events in which 100's to 1,000's km^3 of magma are erupted. The study of these volcanic systems has long been a focus of igneous petrology, yet in many ways they remain poorly understood. The most effective approach to understanding the evolution of silicic magma systems involves integration of high resolution $^{40}\text{Ar}/^{39}\text{Ar}$ dating and U/Pb ion microprobe zircon dating with geochemical and isotopic data, especially at the intracrystalline scale. This allows precise chronologic constraints to be placed on eruptive volume and periodicity, genetic relationships between mafic, intermediate and silicic magmas, and the pre-eruptive temporal evolution of silicic magma systems. Current research in this area is aimed at providing constraints on the origin and petrogenesis of volcanic rocks associated with the multicyclic calderas of the Jemez volcanic field (New Mexico), Yellowstone volcanic field (Wyoming) and the laccolith-caldera complex exposed at the Solitario (Texas).

Major tectonic events, such as extensional thinning of continental crust leading to metamorphic core complex formation, induce a lithospheric scale thermal response. These thermal events are recorded in various isotopic systems contained within minerals of the rocks involved; thus by isotopic dating the timing, rates and duration of major tectonic events can be recovered. Current research in this area includes the thermochronology / tectonics of Cretaceous continental extension associated with breakup of the Pacific margin of Gondwana (Stewart Island, New Zealand), late Tertiary to Quaternary uplift and unroofing of the rocks along the Alpine fault due to convergence between the Pacific and Australian plates (South Island, New Zealand), and timing of extensional collapse of the Sevier Orogen (western North America).

In addition to these field based research areas, I have a long-standing interest in issues regarding development and intercalibration of isotopic dating methods. This includes both to interlaboratory calibrations involving age standards in $^{40}\text{Ar}/^{39}\text{Ar}$ dating and calibrations in which different isotopic dating methods are compared. Recent and active projects include intercalibration / characterization of $^{40}\text{Ar}/^{39}\text{Ar}$ dating standards, intercalibration of $^{40}\text{Ar}/^{39}\text{Ar}$ K-feldspar thermochronometry with other isotopic dating methods, development of cosmogenic ^{38}Ar as a dating tool, and work on dating timing of paleosol formation via authigenic clays.

MEMBERSHIPS

American Geophysical Union
Geological Society of America
Mineralogical Society of America
International Association of Volcanology and Chemistry of the Earth's Interior

COURSES TAUGHT

Undergraduate:
GEOL 101 - Introductory Geology: Exploring Planet Earth
GEOL 220 - Mineralogy
GEOL 221 - Optical Mineralogy and Petrography

GEOL 330 - Introduction to Geochemistry
GEOL 440 - Volcanology
GEOL 449 - Geochronology
GEOL 491 - Seminar in Geology

Graduate:

GEOL 640 - Volcanology (cross listed Undergraduate)
GEOL 649 - Geochronology (cross listed Undergraduate)
GEOL 701 - Graduate Field Seminar
GEOL 708 – Radiogenic Isotope Geochemistry
GEOL 749 - Advanced Geochronology and Thermochronology
GEOL 793 - Diffusion Theory and Heatflow
GEOL 796 – Advanced Geochemistry

STUDENTS MENTORED

Advisor:

Leigh Justet, The geochronology and geochemistry of the Bearhead Rhyolite, Jemez volcanic field, New Mexico, Completed M.S. Thesis, May 1999.

Leigh Justet, Multi-phase evolution of the Jemez Volcanic Field, New Mexico: Implications for the genesis and evolution of continental silicic volcanic centers, Completed Ph.D. dissertation, December 2003.

Joseph Kula, Thermochronology and geobarometry of the Granite Mountains, southeast California: Exhumation of a plutonic complex during collapse of the Sevier Orogeny, Completed M.S. Thesis, October 2002.

Nicole Nastanski, Petrogenesis of Extracaldera Rhyolites at Yellowstone Volcanic Field: Evidence for an evolving Silicic Magma System North of Yellowstone Caldera, Completed M.S. Thesis, August 2005.

Joseph Kula, Mesozoic Tectonic History of the Southwestern U.S. and New Zealand, Completed Ph.D. Dissertation, December 2007.

Katie Wooton, Petrogenesis of Recent Extracaldera Rhyolites, Yellowstone Volcanic Field, Wyoming: Implications for Future Eruptions, M.S. Thesis, in progress.

Penny Padmore, The Canovas Canyon Rhyolite, Jemez Volcanic Field, New Mexico: Multiple Discrete Source Magmas or a Potentially Caldera-forming Magma System?, M.S. Thesis, in progress.

Carla Eichler, Evolution of Las Tres Virgenes volcanic complex, Baja, Mexico: Petrogenetic and tectonic implications. M.S. Thesis, in progress.

Committee Member:

M.S. Students: 4 current, 23 total

Ph.D. Students: 8 current, 10 total

GRANTS AND AWARDS FUNDED

- 2007 – UNLV RIAP - An Ultraviolet Laser for the Nevada Isotope Geochronology Laboratory, \$67,619 (Co-PI Michael Wells)
- 2007 – NSF SGER - Novel Approach to Arid Soil Dating: Extraction and $^{40}\text{Ar}/^{39}\text{Ar}$ Geochronology of Pedogenic Sepiolite and Palygorskite, \$61,238 (Co-PI Brenda Buck)
- 2003 - Texas A&M D.O.E. Reactor Sharing Grant - \$3,400
- 2002 - Texas A&M D.O.E. Reactor Sharing Grant - \$4,000
- 2001 - UNLV SITE Grant, Granite Mtns. Research - \$3,232
- 2001 - Texas A&M D.O.E. Reactor Sharing Grant - \$6,000
- 2000 – Texas A&M D.O.E. Reactor Sharing Grant - \$7,250
- 1999 – Texas A&M D.O.E. Reactor Sharing Grant - \$4,000
- 1998 – UNLV Faculty Travel Grant - \$400
- 1998 – Texas A&M D.O.E. Reactor Sharing Grant - \$5,000
- 1998 – NSF/EPSCoR – Supplement to Nevada Isotope Geochronology Laboratory - \$21,211
- 1997 - NSF/EPSCoR - Nevada Isotope Geochronology Laboratory - \$457,478
- 1986/1987 - Associated Western Universities Thesis Parts Program Grant - Los Alamos National Laboratory, New Mexico - Summer field support
- 1986 - New Mexico Geological Society Research Grant - \$500
- 1984 - American Mineralogist Undergraduate Award

PUBLICATIONS (including in press)

- Kula, J.K., Tulloch, A.J., **Spell, T.L.**, Wells, M.L., and Zanetti, K.A., 2009, Sisters Shear Zone and the isolation of Zealandia from Gondwana, in press, *Tectonics*.
- Scott, J.M., Cooper, A.F., Palin, J.M., Tulloch, A.J., Kula, J., Jongens, R., **Spell, T.L.**, and Pearson, N.J., 2009, Tracking the influence of a continental margin on growth of a magmatic arc (Fiordland, New Zealand) using thermobarometry, thermochronology, and zircon U-Pb and Hf isotopes, in press, *Tectonics*.
- Jongens, R., Tulloch, A.J., **Spell, T.L.**, Rattenbury, M.S., Begg, J.G. and Smith Lyttle, B., 2009, Pember Diorite – an Early Jurassic intrusion in the Rakaia Terrane, Puketeraki Range, Canterbury, New Zealand, *New Zealand Journal of Geology and Geophysics*, v. 52, p. 37-42.
- Wise, J.M., Noble, D.C., Zanetti, K.A., and **Spell, T.L.**, 2008, Quechua II contraction in the Ayacucho intermontane basin: Evidence for rapid and episodic Neogene deformation in the Andes of central Perú. *Journal of South American Earth Sciences*, v. 26., p. 383-396.
- Wells, M.L., **Spell, T.L.**, Zanetti, K.A., and Hoisch, T.D., 2008, Laserprobe argon dating of strain fringes: Mid-Cretaceous synconvergent orogen-parallel extension in the interior of the Sevier orogen, *Tectonics*, v. 27, TC3012, doi:10.1029/2007TC002153.
- Kurum, S., Onal, A., Boztug, D., **Spell, T.L.**, Arslan, M., 2008, $^{40}\text{Ar}/^{39}\text{Ar}$ age and geochemistry of the post-collisional Miocene Yamadag volcanics in the Arapgir area (Malatya province), Eastern Anatolia, Turkey, *Journal of Asian Earth Sciences*, v. 33, p. 229-251.

- Onal, A., Boztug, D., Mehmet, A., **Spell, T.L.**, and Kurum, S., 2008, Petrology and $^{40}\text{Ar}/^{39}\text{Ar}$ age of the bimodal Orduzu (Malatya) volcanics from the western end of the eastern Anatolian Neogene volcanism, Turkey, *Turkish Journal of Earth Sciences*, v. 17, p. 85-109.
- Kaymakci, N., Aldanmaz, E., Langereis, C., **Spell, T. L.**, Gurer, O. F., and Zanetti, K. A., 2007, Late Miocene transcurrent tectonics in NW Turkey: Evidence from palaeomagnetism and ^{40}Ar - ^{39}Ar dating of alkaline volcanic rocks, *Geological Magazine*, v. 144, p. 379-392.
- Verdel, C., Wernicke, B.P., Ramezani, J., Hassanzedeh, J., Renne, P.R., and **Spell, T.L.**, 2007, Geology and thermochronology of Tertiary Cordilleran-style metamorphic core complexes in the Saghand region of central Iran, *Geological Society of America Bulletin*, v. 119, no. 7/8, p. 961-977.
- Kula, J.L., Tulloch, A.J., **Spell, T.L.** and Wells, M.L., 2007, Two-stage rifting of Zealandia-Australia-Antarctica: evidence from $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronometry of the Sisters shear zone; Stewart Island, NZ, *Geology*, v. 35, no. 5, p. 411-414
- Edgar, C.J., Wolff, J.A., Olin, P.H., Nichols, H.J., Pittari, A., Cas, R.A.F., Reiners, P.W., **Spell, T.L.** and Marti, J., 2007, The late Quaternary Diego Hernandez Formation, Tenerife: a complex cycle of voluminous explosive phonolitic eruptions and the factors responsible, *Journal of Volcanology and Geothermal Research*, v. 160, p. 59-85.
- Noble, D.C., Rios, C.A., Vidal, C.E., **Spell, T.L.**, Zanetti, K.A., Angeles, Z.C., Ochoa, J.L.A., and Cruz, S.R.C., 2005, Late Cretaceous basalt in the Rio Mala Valley, central Peru: Evidence for extension and mafic magmatism prior to Late Cretaceous – Paleocene plutonism and silicic volcanism, *Geological Society of Peru Special Volume #6*, p. 141-148.
- Noble, D.C., Vidal, C.E., Angeles, Z.C., Wise, J.M., Zanetti, K.A., and **Spell, T.L.**, 2005, Caldera related ash-flow tuff of Paleocene age in central Peru and its significance for Late Cretaceous and Paleocene magmatism, sedimentation and tectonism, *Geological Society of Peru Special Volume #6*, p. 127-140.
- Wells, M.L., Beyene, M.A., **Spell, T.L.**, Kula, J.L., Miller, D.A. and Zanetti, K.A., 2005, The Pinto Shear Zone; A Laramide Synconvergent Extensional Shear Zone in the Mojave Desert Region of the Southwestern Cordilleran Orogen, western United States, *Journal of Structural Geology*, Vol. 27/9, p. 1697-1720.
- Leavitt, E.D., **Spell, T.L.**, Wallace, A.R., Goldstrand, P.M., and Arehart, G.B., 2004, Geochronology of the Midas Low-sulfidation Epithermal Gold-Silver Deposit, Elko County, Nevada, *Economic Geology*, v. 99, p. 1665-1686.
- Bartolini, C., Lang, H., and **Spell, T.L.**, 2004, Geochronology, geochemistry, and tectonic setting of the Mesozoic Nazas Arc in North-Central Mexico, and its continuation to Northern South America, in C. Bartolini, R.T. Buffler, and J. Blickwede, eds. *The Circum-Gulf of Mexico and the Caribbean: Hydrocarbon Habitats, Basin Formation, and Plate Tectonics*, AAPG Memoir 79, p.427-461.

- Batt, G.E., Baldwin, S.L., Cottam, M., Fitzgerald, P.G., Brandon, M.T., and **Spell, T.L.**, 2004, Cenozoic Plate Boundary Evolution in the South Island of New Zealand: New Thermochronological Constraints, *Tectonics*, v. 23, No. 4, TC4001, 10.1029/2003TC001527.
- Reiners, P.W., **Spell, T.L.**, Nicolescu, S., and Zanetti, K.A., 2004, Zircon (U-Th)/He thermochronometry: He diffusion and intercalibration with $^{40}\text{Ar}/^{39}\text{Ar}$ dating, *Geochemica et Cosmochemica Acta*, v. 68, p. 1857-1887.
- Trop, J.M., Ridgway, K.D., and **Spell, T.L.**, 2003, Sedimentary record of transpressional tectonics and ridge subduction in the Tertiary Matanuska Valley-Talkeetna Mountains forearc basin, southern Alaska, *Geological Society of America Special Paper 371: Geology of a transpressional orogen developed during ridge-trench interaction along the north Pacific margin*, V.B. Sisson, S. Roeske, and T. L. Pavlis, eds., 353 p.
- Spell, T.L.** and McDougall, I., 2003, Characterization and calibration of $^{40}\text{Ar}/^{39}\text{Ar}$ dating standards, *Chem. Geol.*, v. 198, p. 189-211.
- Davis, G.A., Yadong, Z., Darby, B.J. and **Spell, T.L.**, 2002, Geometric and temporal evolution of an extensional detachment fault, Hohhot metamorphic core complex, Inner Mongolia, China, *Geology*, v. 30, p. 1003-1006.
- Spell, T.L.**, Smith, E.I., Sanford, A. and Zanetti, K.A., 2001, Systematics of xenocrystic contamination: Preservation of discrete feldspar populations at McCullough Pass Caldera revealed by $^{40}\text{Ar}/^{39}\text{Ar}$ dating, *Earth and Planetary Science Letters*, v. 190/3-4, p. 153-165.
- Justet, L. and **Spell, T.L.**, 2001, Effusive eruptions from a large shallow magma chamber: The Bearhead Rhyolite, Jemez Volcanic Field, New Mexico, *Jour. Volc. Geotherm. Res.*, v. 107, p. 241-264.
- Spell, T.L.**, McDougall, I., and Tulloch, A.J., 2000, Thermochronologic constraints on the breakup of the Pacific Gondwana margin: The Paparoa Metamorphic Core Complex, South Island, New Zealand, *Tectonics*, v. 19, p. 433-451.
- Spell, T.L.**, Kyle, P.R., and Baker, J., 1996, Geochronology and geochemistry of the Cerro Toledo Rhyolite, *New Mexico Geological Society - 47th Annual Field Conference Guidebook*, p. 263-268.
- Spell, T.L.**, McDougall, I., and Doulgeris, A., 1996, Cerro Toledo Rhyolite, Jemez Volcanic Field, New Mexico: $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology of the transition between two caldera forming eruptions, *Geol. Soc. Am. Bull.*, v. 108, p. 1549-1566.
- Stix, J., Layne, G.D., and **Spell, T.L.**, 1995, The behavior of light lithophile and halogen elements in felsic magma: Geochemistry of post-Valles caldera rhyolites, Jemez volcanic field, New Mexico, *J. Volcanol. Geotherm. Res.*, v. 67, p. 61-77.
- Spell, T.L.** and Harrison, T.M., 1993, $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology of post-Valles Caldera rhyolites, Jemez Mountains volcanic field, New Mexico, *J. Geophys. Res.*, v. 98, p. 8031-8051.

- Spell, T.L.**, DeLong, S.E., and Creasy, W.R., 1993, Characterization of Fourier transform ion cyclotron resonance mass spectrometry for quantitative isotope ratio measurements, *Int. Jour. Mass Spectrom. Ion Phys.*, v. 124, p. 223-239.
- Spell, T.L.**, Kyle, P.R., Thirlwall, M.F., and Campbell, A., 1993, Isotopic and geochemical constraints on the origin and evolution of postcollapse rhyolites in the Valles Caldera, New Mexico: *J. Geophys. Res.*, v. 98, p. 19,723-19,739.
- Spell, T.L.** and McDougall, I., 1992, Revisions to the age of the Brunhes - Matuyama boundary and the Pleistocene geomagnetic polarity timescale, *Geophys. Res. Lett.*, v. 19, p. 1181-1184.
- Self, S., Wolff, J.A., **Spell, T.L.**, Skuba, C.E., and Morrissey, M.M., 1991, Revisions to the stratigraphy and volcanology of the post-0.5 Ma units and the volcanic section of VC-1 core hole, Valles Caldera, New Mexico, *J. Geophys. Res.*, v. 96, p. 4107-4116.
- Spell, T.L.** and Norrell, G.T., 1990, The Ropes Creek assemblage: Petrology, geochemistry, and tectonic setting of an ophiolitic thrust sheet in the southern Appalachians, *Am. J. Science*, v. 290, p. 811-842.
- Spell, T.L.**, Harrison, T.M., and Wolff, J.A., 1990, $^{40}\text{Ar}/^{39}\text{Ar}$ dating of the Bandelier Tuff and San Diego Canyon ignimbrites, Jemez Mountains, New Mexico: Temporal constraints on magmatic evolution, *J. Volcanol. Geotherm. Res.*, v. 43, p. 175-193.
- Spell, T.L.** and Kyle, P.R., 1989, Petrogenesis of Valle Grande Member rhyolites, Valles Caldera, New Mexico: Implications for evolution of the Jemez Mountains magmatic system, *J. Geophys. Res.*, v. 94, p. 10379-10396.

CONFERENCE AND FIELD TRIP PROCEEDINGS (Refereed)

- Tulloch, A.J., Beggs, M., Kula, J.K., **Spell, T.L.**, Mortimer, N., 2006, The Sisters Shear Zone, Cordillera Zealandia and their influence on the early development of the Great South Basin, *New Zealand Petroleum Conference Proceedings*, Paper #59, 11 p.
- Downing, R.F., Smith, E.I., Orndorff, R.L., **Spell, T.L.** and Zanetti, K.L., 2001, Imaging the Colorado Plateau - Basin and Range Transition Zone using basalt geochemistry, geochronology and geographic information systems: *in* Erskine, M.C., Faulds, J.E., Bartley, J.M., and Rowley, P.D., The Geologic Transition, High Plateaus to Great Basin - A Symposium and Field Guide, The J.H. Mackin Volume, Utah Geological Association Publication 30 and Pacific Section American Association of Petroleum Geologists Publication GB 78, p. 127-154.
- Leavitt, E.D., Goldstrand, P., Schmidt, D., Wallace, A.R., **Spell, T.**, and Arehart, G., 2000, Geochronology of the Midas gold-silver deposit and its relationship to volcanism and mineralization along the northern Nevada rift, in Wallace, A.R., and John, D.A., (eds.), Volcanic history, structure, and mineral deposits of the north-central northern Nevada rift: *Geological Society of Nevada 2000 Symposium Field Trip Guidebook*, No.8, p.157-162.

REPORTS (Not Refereed)

- Spell, T.L.**, Zanetti, K.A, Spencer, J.E., Richard, S.M., Ferguson, C.A., Skotnicki, S.J., and Orr, T., 2003, Eighteen new $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronologic analyses from southern and central Arizona, *Arizona Geological Survey Open File Report 03-03*, 63 p.

PAPERS IN REVIEW

PAPERS IN PREPARATION

Justet, L. and **Spell, T.L.**, New $^{40}\text{Ar}/^{39}\text{Ar}$ ages from the Jemez Volcanic Field, NM: Periodic volcanism culminating in two major silicic phases, to be submitted to *Jour. Geophys. Res.*

Spell, T.L., Smith, E.I., Nastanski, N. and Bennett, K., Establishment and Evolution of a Quaternary Silicic Magma System North of Yellowstone Caldera, to be submitted to *Geology*

Tulloch A.J., **Spell T.L.** and Allibone, A., Assembly and breakup of the Pacific Gondwana Margin: The geologic record from Stewart Island, New Zealand, to be submitted to *Tectonics*

Kula, J.K., Zanetti, K.A. and **Spell, T.L.**, $^{40}\text{Ar}/^{39}\text{Ar}$ age spectra from artificially mixed micas, to be submitted to *Chemical Geology*

PAPERS PRESENTED AT PROFESSIONAL MEETINGS

Padmore, P. and **Spell, T.L.**, 2008, The Canovas Canyon Rhyolite, Jemez Volcanic Field, New Mexico: Early Eruptions From A Large Silicic Magma System, or Not?: *EOS Trans. Am. Geophysical Union*, 89(53), Fall Meet. Suppl., Abstract V21C-2124.

Wells, M.L., **Spell, T.L.**, Hoisch, T.D., Arriola, T., and Zanetti, K.A., 2008, Laserprobe $^{40}\text{Ar}/^{39}\text{Ar}$ dating of strain fringes: An example from the interior of the Sevier orogen: *EOS Trans. Am. Geophysical Union*, 89(53), Fall Meet. Suppl., Abstract V21E-02.

Robins, C., Buck, B.J., **Spell, T.**, Soukup, D., 2008, Micromorphology of sepiolite, palygorskite, and other phyllosilicates in petrocalcic soils of the southwest USA: Implications for arid soil dating, Abstracts of the 13th International Conference on Soil Micromorphology, Sept. 11-16, Chengdu China, p. 119.

Robins, C., Buck, B.J., **Spell, T.**, Soukup, D., 2008, (invited) A novel approach to arid soil dating: Extraction and $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology of pedogenic sepiolite and palygorskite, GSA/SSSA/ASA/CSSA Joint Annual Meeting, Houston TX, Oct. 5-9, 2008, Abstracts with Program, #699-24.

Spell, T.L., Wooton, K., Nastanski, N.M., Smith, E.I. and Bennett, K.M., 2008, The Role of Basalt in Eruption of Quaternary Rhyolites North of the Yellowstone Caldera, *Geol. Soc. Am. Abstr. w/ Prog.*, v. 40, no. 1, p. 62.

Honn, D., Simon, A., Smith, E.I. and **Spell, T.L.**, 2007, The River Mountains Volcanic Section – Wilson Ridge Pluton, a Long Lived Multiphase Mid-Tertiary Igneous System in Southern Nevada and Northwestern Arizona, USA: *EOS Trans. Am. Geophysical Union*, 88(52), Fall Meet. Suppl., Abstract V43G-05.

Spell, T.L. and Gibler, K.I., 2007, Postcollapse Volcanism in the Valles Caldera, New Mexico: Magma System Dynamics During a Transition Between Large Volume Explosive and Small Volume

Effusive Eruptions: *EOS Trans. Am. Geophysical Union*, 88(52), Fall Meet. Suppl., Abstract V33C-1509.

Wooton, K.M. and **Spell, T.L.**, 2007, Latest Yellowstone Volcanism: Roaring Mountain Rhyolites, Yellowstone Volcanic Field, Wyoming: *Geol. Soc. Am. Abstr. w/ Prog.*, v. 39, no. 6, p. 393.

Wells, M.L., **Spell, T.L.**, Arriola, T. and Hoisch, T.D., 2007, A Mid-Cretaceous Age for Orogen Parallel Extension in the Interior of the Sevier Orogen Constrained by Laserprobe $^{40}\text{Ar}/^{39}\text{Ar}$ Dating of Strain Fringes: *Geol. Soc. Am. Abstr. w/ Prog.*, v. 39, no. 6, p. 229.

Kula, J.L., Tulloch, A.J., **Spell, T.L.**, and Wells, M.L., 2006, $^{40}\text{Ar}/^{39}\text{Ar}$ Thermochronometry of the Sisters Shear Zone, Stewart Island, New Zealand; Implications for Driving Mechanisms and Multi-Stage Breakup of the Pacific Margin of Gondwana: *EOS Trans. Am. Geophysical Union*, 87(52), Fall Meet. Suppl., Abstract T53A-1588

Kula, J.L., Tulloch, A.J., **Spell, T.L.**, Wells, M.L., 2005, Timing of continental extension leading to separation of eastern New Zealand from west Antarctica; $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronometry from Stewart Island, NZ: *Geol. Soc. Am. Abstr. w/ Prog.*, v. 37.

Spell, T.L., Smith, E.I., Nastanski, N., and Bennett, K., 2004, Establishment and Evolution of a new Silicic Magma System North of Yellowstone Caldera: Geochronology, Geochemistry and Petrographic Relationships of Extracaldera Basalts and Rhyolites in the Norris-Mammoth Corridor: *EOS Trans. Am. Geophysical Union*, v. 85, no. 47, Abstract V52B-08.

Spell, T.L., and Nastanski, N., 2004, Ion Microprobe $^{206}\text{Pb}/^{238}\text{U}$ and $^{230}\text{Th}/^{238}\text{U}$ Zircon Ages from Extracaldera Rhyolites at Yellowstone: Constraints on Magma Residence Times and Evolution, *Geol. Soc. Am. Abstr. w/ Prog.*, Vol. 36, No. 5, p. 431-432.

Nastanski, N, and **Spell, T.L.**, 2004, Extracaldera rhyolites north of the Yellowstone Plateau Volcanic Field caldera complex: An evolving silicic magma system and site of future large volume eruptions?, *Geol. Soc. Am. Abstr. w/ Prog.*, Vol. 36, No. 5, p. 431.

Nastanski, N, and **Spell, T.L.**, 2004, Do the young extracaldera rhyolites north of Yellowstone Caldera mark the beginnings of a 4th volcanic cycle in the Yellowstone Plateau Volcanic Field?, *Geol. Soc. Am. Abstr. w/ Prog.*, v. 36, No. 4, p. 11.

Wells, M.L., Sheeley, J.C., **Spell, T.L.**, Kelly, E.D., and Hoisch, T.D., 2004, Eocene extension in northwestern Utah-southern Idaho: Early motion on the polyphase Middle Mountain shear zone: *Geol. Soc. Am. Abstr. w/ Prog.*, v. 36, p. 73.

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INVITED PRESENTATIONS

University of Nevada, Reno, Department of Geological Sciences, November 21, 2003, "The Hohonu Batholith, New Zealand: A 380 Ma History of Tectonics"

University of New Mexico, Department of Earth and Planetary Science, March 1, 2002, "Thermochronology of South Island, New Zealand: Alternating Contractional and Extensional Tectonics"

University of Nevada, Las Vegas, Department of Geoscience, September 12, 2001, "The Hohonu Batholith, New Zealand: A 380 Ma History of Tectonics"

New Mexico Tech, Department of Earth and Environmental Science, April 12, 2001,
“Thermochronology of the Alpine Fault, New Zealand”

Washington State University, Department of Geology, April 14, 2000, “Stewart Island, New Zealand:
A Record of Cretaceous Extensional Tectonics”

California Institute of Technology, Division of Geological and Planetary Sciences, September 26,
1997, “Thermochronology of the Paparoa Metamorphic Core Complex, South Island, New Zealand: A
Record of Continental Breakup”

University of Nevada, Reno, Department of Geological Sciences, October 18, 1996, “Evolution of a
Large Silicic Magma System Between Two Caldera-Forming Eruptions: Jemez Volcanic Field, New
Mexico”

SCIENTIFIC COLLABORATORS (past 5 years)

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