

Mark D. Schmitz

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EDUCATION:

Ph.D., Geochemistry, Massachusetts Institute of Technology, 2002; thesis: "Geological and Thermochemical Evolution of the Lower Crust of Southern Africa"

M.Sc. (with distinction), Geology & Geochemistry, University of Auckland, New Zealand, 1995; thesis: "Geochemical Studies of the Rotoiti Pyroclastics Eruption, Okataina Volcanic Center, Taupo Volcanic Zone, North Island, New Zealand"

B.A. (summa cum laude), Geology, Macalester College, St Paul, MN, 1994; thesis: "Origin and Petrogenesis of the Early Proterozoic Kenora-Kabetogama Mafic Dike Swarm"

PROFESSIONAL DEVELOPMENT:

Participant, Boise State Teaching Scholars Undergraduate Research Faculty Learning Group, Center for Teaching and Learning, Boise State University, 2007-2008

Director, Boise State University Isotope Geology Laboratory, 2007-present

Assistant Professor, Department of Geosciences, Boise State University, 2004-present

Carnegie Postdoctoral Fellow, Department of Terrestrial Magnetism, Carnegie Institute of Washington, 2002-2003

Graduate Research Associate & Teaching Assistant, Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, 1995-2001

Fulbright Fellow, University of Auckland, New Zealand, 1994-1995

Student Teaching Assistant & Lab Supervisor, Geology Department, Macalester College, 1993-1994

AWARDS:

Outstanding Student Paper Award, Volcan. Geochem. Petrol. Section, AGU Spring Meeting, 2001

Award for Teaching Assistant Excellence, Dept. of EAPS, M.I.T., 1999

Department of Defense National Defense Science and Engineering Graduate Fellowship, 1995-1998

Fulbright Scholar to New Zealand, 1994-1995

Phi Beta Kappa, inducted 1994

Pew Midstates Consortium Grant for Undergraduate Research, Summer 1993

American Institute of Professional Geologists Grant for Undergraduate Leadership, 1992

PROFESSIONAL SERVICE & OUTREACH:

Community

Hosted the Vallivue High School (Caldwell, ID) Science Club (25 students, parents and teachers) in a full day field and laboratory exploration of relative and absolute dating methods in geology, March 9, 2007.

Presented a seminar on "Geochronology" to the public and members of the Idaho Museum of Mining and Geology, February 27, 2007.

Hosted the Salmon High School (Salmon, ID) Science class (27 students and teachers) in a tour of the Isotope Geology Laboratory at Boise State University, December 18, 2006.

Hosted the Meridian Academy High School (Meridian, ID) Idaho Geology class (8 students and teachers) in a tour of the Isotope Geology Laboratory at Boise State University, December 8, 2006.

Hosted the Central Academy High School (Meridian, ID) Idaho Geology class (10 students and teachers) in a tour of the Isotope Geology Laboratory at Boise State University, December 1, 2006.

Hosted the Centennial High School (Boise, ID) Geology concurrent enrollment class (26 students and teachers) in a tour of the Isotope Geology Laboratory at Boise State University, April 8, 2006.

Presented a seminar on “Geochronology” at the Forensic Biology and Evolution Workshop for high school teachers, Boise State University Extended Studies Program, October 6, 2005.

Department

Program Coordinator, M.S. Geology and Ph.D. Geosciences (co-), Graduate Program Committee
Representative, Geosciences Department Space Committee and CESED Building Design Committee
Proxy, Fall 2006 to present

Geosciences Department Representative to Albertsons Library, Fall 2004 to present

Chair, Geosciences Faculty Search Committee, Fall 2005 – Spring 2006

Department Representative, Boise State Univ. Graduate & Professional School Day: Oct. 2005

Department Representative, Discover Boise State University: Oct. 2005

Chair, Geosciences Faculty Search Committee, Fall 2004 – Spring 2005

Department Representative, Boise State Univ. Graduate & Professional School Day: Oct. 2004

Department Representative, Discover Boise State University: Oct. 2004

University

Departmental Liaison, Fulbright Student Program, Spring 2008 to present

Nominating Faculty and Advisor to Ms. Cassie Anderson, “Nitrogen Aggregation in Diamonds from the Star Mine kimberlite, South Africa”, Boise State University Undergraduate Research and Scholarship Conference, April 15, 2007

Nominating Faculty and Advisor to Ms. Cassie Anderson, “Nitrogen Aggregation in Diamonds from the Star Mine kimberlite, South Africa”, Boise State Day at the Legislature, January 17, 2007

Nominating Faculty and Advisor to Ms. Lyndsey Needham, “A High-Precision Seawater Sr Isotope Curve”, Boise State Day at the Legislature, January 18, 2006

Panel Member, Fulbright Information Session, International Studies Office, Nov. 15, 2005

Non-Library Faculty Member, Dean of Libraries Search Committee, Fall 2005

Advised and mentored the first successful Fulbright Comprehensive Graduate Study Fellowship awardee at Boise State University, Mr. Benjamin Linhoff for study in Mongolia, 2004-2005

Non-Library Faculty Member, Albertson Library Executive Director Search Committee, Fall 2004

National

Co-chair (with W.S. Snyder), AAPG Annual Convention, NAMS Special Session, “High-Resolution Chronostratigraphic Calibration and Application to Basin Analysis, Tectonics, and Paleoclimate (SEPM)”, San Antonio, TX, April 21-22, 2008

Participant, NSF-sponsored workshop, “EARTHTIME III: A Proof of Concept”, Santa Fe Institute, October, 2006

Participant, NSF-sponsored workshop, “EarthChem: Geoinformatics for Geochemistry” & “Xenoliths & GeoFrame: Supporting New Science with Advanced Data and Sample Management”, Columbia University, May 28, 2006

Participant, NSF-sponsored workshop, “EarthScope in the Northern Rockies Workshop”, U. Montana-Bozeman, Sept. 2005

Participant, DOSECC-sponsored workshop, “Drilling for Deep-Time GeoSystems”, NSF Headquarters, Arlington, VA, Aug. 2005

Participant, NSF-sponsored workshop, “Geology of Western Pangea”, Mesa State College, Grand Junction, CO, May 2005

Participant, NSF-sponsored workshop, “Reinvigorating Thermal Ionization Mass Spectrometry”, U. Colorado-Boulder, Nov. 2004

Participant, NSF-sponsored workshop, “EARTHTIME II: Intercalibration of High-Precision Geochronometers”, Massachusetts Institute of Technology, October, 2004

Participant, NSF-sponsored workshop, “EARTHTIME I: Calibration of the Geological Timescale” Smithsonian Institution National Museum of Natural History, Washington DC, October 2003

Participant, NSF-sponsored workshop, “Integrated Solid Earth Sciences Forum II: Geochronology and Cyberinfrastructure”, Seattle, Washington, October 2003

Co-chair, Integrated Solid Earth Sciences Cyber-Infrastructure (ISES-CI) Geochronology and Thermochronology Working Group, 2003-present
Associate Editor, South African Journal of Geology, 2002-present
Proposals Reviewed: 2007: U.S. National Science Foundation (4)
2006: U.S. National Science Foundation (6)
2005: U.S. National Science Foundation (7)
2004: U.S. National Science Foundation (8); U.K. Natural Environmental Research Council (1)
Manuscripts Reviewed: 2007: 6 manuscripts for 5 international journals
2006: 9 manuscripts for 5 international journals
2005: 9 manuscripts for 7 international journals
2004: 7 manuscripts for 5 international journals
Memberships: Geological Society of America, 1993-present; American Geophysical Union, 1994-present; Geochemical Society, 2002-present

INVITED LECTURES:

Department of Geoscience, University of Nevada Las Vegas, December 6, 2006
Department of Earth and Planetary Sciences, University of New Mexico, November 3, 2006
Department of Geosciences, Idaho State University, April 26, 2006
Department of Geology, Utah State University, April 24, 2006
Department of Geology and Geophysics, University of Wyoming, October 6, 2005
Department of Earth and Space Sciences, University of Washington, April 7, 2005
Department of Geology, Washington State University, April 29, 2004

COURSES TAUGHT:

Spring 2008

GEOS 496 Independent Study; Michelle Gordon
GEOS 597 Readings in the Solid Earth Sciences; enrollment: 2

Fall 2007

GEOS 638 Radiogenic Isotope Geochemistry and Geochronology; enrollment: 4
GEOS 425/525 Whole Earth Geochemistry; enrollment: 12
GEOS 597 Readings in the Solid Earth Sciences; enrollment: 9

Spring 2007

GEOL 425/525 Whole Earth Geochemistry; enrollment: 2

Fall 2006

GEOL 638 Radiogenic Isotope Geochemistry and Geochronology; enrollment: 5
GEOL 597 Readings in the Solid Earth Sciences; enrollment: 2

Spring 2006

GEOL 697 Physics and Chemistry of Mountain Building; enrollment: 2

Fall 2005

GEOL 425/525 Whole Earth Geochemistry; enrollment: 3
GEOL 572 Isotope Geochemistry and Geochronology; enrollment: 4

Spring 2005

GEOL 425/525 Geochemistry; enrollment: 7
GEOL 697 Physics and Chemistry of Mountain Building; enrollment: 2
GEOL 597 Collaborative Research Seminar (BSU/ISU Distance Learning); enrollment: 6

Fall 2004

GEOL 572 Isotope Geochemistry and Geochronology; enrollment: 5
GEOL 497/597 Readings in Quaternary Geochronology; enrollment: 19

Spring 2004

GEOL 425/525 Geochemistry; enrollment: 8

STUDENTS ADVISED:

Undergraduate (indicates completed program)*

Michelle Gordon, B.S. Geology, Independent Study, Spring 2008, Advisor

*Cassie Anderson, B.S. Geology, Undergraduate thesis, Fall 2005-present, Advisor (now high school physical sciences educator, Meridian School District)

*Benjamin Linhoff, B.S. Geology, Undergraduate thesis, Fall 2004-Spring 2005, Advisor (now M.S. candidate, U. Texas at Austin)

Graduate (indicates completed program)*

John Henry Dye, M.S. Geology candidate, Fall 2007-present, Advisor

Kyle Tumpane, M.S. Geology candidate, Fall 2007-present, Advisor

Rimma Khodjanyazova, Ph.D. Geoscience candidate, Fall 2007-present, Co-Advisor

Jennifer Wilson, M.S. Hydrological Sciences candidate, Fall 2006-present, Committee Member

Ashley Dack, M.S. Geology candidate, Fall 2007-present, Committee Member

Joshua Wilkins, M.S. Geology candidate, Fall 2007-present, Committee Member

Gene Kurz, Ph.D. Geoscience candidate, Spring 2006-present, Committee Member

*Tiffany Rivera, M.S. Geology, "A geochemical and multi-isotopic approach to determine mantle source and petrogenesis of Late Cenozoic basalts in the Western Snake River Plain, Idaho", 2008, Co-Advisor

*Jeremy Alexander, M.S. Geology, "Geochronology of the House Mountain gneiss complex in the Atlanta lobe of the Idaho Batholith", 2007, Advisor

*Kimberly Kurz, M.S. Geology, "Emplacement and compositional variations of the dikes at Sinker Butte Volcano, Western Snake River Plain, Idaho", 2007, Committee Member

*Lyndsey Needham, M.S. Geology, "A high resolution Pennsylvanian-early Permian seawater $^{87}\text{Sr}/^{86}\text{Sr}$ curve", 2006, Advisor

PROPOSALS

Pending

Acquisition of a Stable Isotope Mass Spectrometer for Earth Science and Ecological Research

NSF/EAR Major Research Instrumentation (EAR-0842367)

M.J. Kohn, J.R. Belthoff, V.I. Davydov, J.P. McNamara, M.D. Schmitz, Department of Geosciences, Boise State University, \$376,603 pending for 01/01/09-12/31/10

Acquisition of a 213 nm Laser and Cathodoluminescence Detector for Microanalysis of Zircon and other Earth Materials

NSF/EAR Instrumentation and Facilities (EAR-0824974)

M.J. Kohn, M.D. Schmitz, J.L. Crowley, Department of Geosciences, Boise State University, \$137,842 pending for 07/01/08-06/30/09

Awarded

The Life Cycle Plan: Cesium Signature Detection

Idaho National Laboratory subaward

S. Benner, J. Pierce, and M.D. Schmitz, Department of Geosciences, Boise State University, \$51,624 awarded for 06/01/06-4/01/07

Collaborative Research: Understanding Climate Change During the Final Stages of Late Paleozoic Gondwanan Glaciation – An Integrated Data-Model Study

NSF/EAR Sedimentary Geology and Paleobiology (EAR-0545247)

V.I. Davydov, and M.D. Schmitz, Department of Geosciences, Boise State University, \$361,839 awarded for 07/01/06-6/30/09

Acquisition of a Thermal Ionization Mass Spectrometer for Investigations in High-Precision Geochronology and Isotope Geochemistry

NSF/EAR Major Research Instrumentation (EAR-0521221)

M.D. Schmitz, V.I. Davydov, C.J. Northrup, and Mitch Lyle, Department of Geosciences, Boise State University, \$621,000 awarded for 07/27/05-07/26/07

ID-TIMS U-Pb Zircon Radiometric Ages for the Pennsylvanian-Cisuralian Time Scale: Implications

for Global Correlation and Rates of Processes

NSF/EAR Geology & Paleontology (EAR-0418703)

M.D. Schmitz, and V.I. Davydov, Department of Geosciences, Boise State University, \$350,085, awarded for 07/13/04-06/30/08

Faculty Start-up Augmentation Grant

NSF EPSCoR, flow-through from U. Idaho

M.D. Schmitz, Department of Geosciences, Boise State University, \$25,000 awarded for 03/01/04-12/01/04

Integrated Studies of Diamond Age and Composition: Constraints on Continental Lithospheric Evolution, Kaapvaal-Zimbabwe Craton, Southern Africa

NSF/EAR Petrology & Geochemistry (EAR-0310059)

S.B. Shirey, R.C. Carlson, and M.D. Schmitz, Department of Terrestrial Magnetism, Carnegie Institution of Washington, \$198,685 awarded for 07/01/03-06/30/08; \$77,702 subcontract to Boise State University

Declined

MRI: Acquisition of a SEM/FIB for Multidisciplinary Materials Research

NSF/OIA Major Research Instrumentation (OIA-0821087)

M. Frary, P. Mullner, M. Schmitz, A. Punnoose and W. Knowlton, Boise State University, \$799,900 declined for 09/01/08-08/31/11

Testing Models of Cordilleran Accretionary Margin Evolution: Structural, Geochronologic, and Isotopic Studies of Arc Plutonic Complexes in the Blue Mountains Province, ID-OR-WA

NSF/EAR Tectonics (EAR-0810246)

C.J. Northrup, M.D. Schmitz, and K.M. Viskupic, Department of Geosciences, Boise State University, \$198,609 declined for 06/01/08-05/31/10

Collaborative Research: Anisotropy of the Continental Crust in the Superior Province, Minnesota and Tectonic Significance

NSF/EAR Geophysics (EAR-0809632)

M.D. Schmitz, Department of Geosciences, Boise State University, \$40,096 declined for 08/01/08-07/31/11

Collaborative Research: Assembly and Modification of a Continental Margin: 4-D Integrated Geoscience

NSF/EAR EarthScope (EAR-0751814)

M.D. Schmitz, C.J. Northrup, and K.M. Viskupic, Department of Geosciences, Boise State University, \$664,141 declined for 04/01/08-03/31/13

Acquisition of a Stable Isotope Mass Spectrometer for Earth Science and Ecological Research

NSF/EAR Major Research Instrumentation (EAR-0744084)

M. Kohn, M.D. Schmitz, V.I. Davydov, A. Dufty, Department of Geosciences, Boise State University, \$551,881 declined for 01/01/08-12/31/11

Testing Models of Plume-Lithosphere Interaction and Extensional Magmatism in the Western Snake River Plain

NSF/EAR Petrology & Geochemistry (EAR-0738890)

M.D. Schmitz and C. White, Department of Geosciences, Boise State University, \$136,739 declined for 07/01/08-06/30/10

Acquisition of a Dual-Beam SEM/FIB for Multidisciplinary Research and Education

NSF/DMR Major Research Instrumentation (DMR-0722818)

M. Frary, M. Mitkova, P. Mullner, A. Punnoose, M.D. Schmitz, Boise State University, \$1,282,067 declined for 09/01/07-08/31/10

Field, Structural and Isotopic Studies of Permo-Triassic Arc Assembly, Accretion and Tectonic Evolution in the Blue Mountains Province, Northern U.S. Cordillera

NSF/EAR Tectonics (EAR-0609903)

C.J. Northrup, M.D. Schmitz, and K.M. Viskupic, Department of Geosciences, Boise State University, \$235,986 declined for 06/01/06-05/31/09

Collaborative Research: Constraining the tempo of a large silicic magma system through high-precision U-Pb and ⁴⁰Ar/³⁹Ar geochronology (San Juan volcanic field, Colorado)

NSF/EAR Petrology & Geochemistry (EAR-0510380)

M.D. Schmitz, Department of Geosciences, Boise State University, \$132,400 declined for 07/01/05-06/30/07

Acquisition of a Thermal Ionization Mass Spectrometer for Investigations in High-Precision Geochronology and Isotope Geochemistry

NSF/EAR Major Research Instrumentation (EAR-0420578)

M.D. Schmitz, V.I. Davydov, C.J. Northrup, and Mitch Lyle, Department of Geosciences, Boise State University, \$874,568 declined for 07/23/04-07/22/06

Collaborative Research: High-precision U-Pb zircon systematics of the San Juan volcanic field, Colorado: tempo of a large silicic magmatic system

NSF/EAR Petrology & Geochemistry (EAR-0408431)

M.D. Schmitz, Department of Geosciences, Boise State University, \$132,723 declined for 07/01/04-06/30/06

PUBLICATIONS (*indicates student author)

Manuscripts in Preparation

Schmitz, M.D., Davydov, V.I., Chernykh, V., Chuvashov, B., and Snyder, W.S., Radiometric calibration of the Late Pennsylvanian – Early Permian (Cisuralian) timescale.

Schmitz, M.D., Needham*, L.L., Davydov, V.I., Chernykh, V., Chuvashov, B., Snyder, W.S., High-precision, conodont-based seawater strontium isotope chemostratigraphic calibration across the Permo-Carboniferous transition.

Schmitz, M.D., Shirey, S.B., and Carlson, R.W., Age and metasomatic evolution of the subcontinental lithospheric mantle from eclogitic zircons.

Schmitz, M.D., Shirey, S.B., Richardson, S. and Garden, B., Archean subduction-related diamond growth in the Kaapvaal Craton

Schmitz, M.D., Shirey, S.B., and Carlson, R.W., Mesoproterozoic diamond growth beneath the Kaapvaal Craton: evidence from the Star Mine, South Africa

Schmitz, M.D., McNamara, J., Wilson, J., Benner, S., Sr and U isotopes constrain shallow groundwater mixing and recharge at the Blackfoot – Snake River confluence, Eastern Snake River Plain

Schmitz, M.D., Baldwin, J.A., and Bowring, S.A., Zircon exsolution from rutile in ultra-high temperature lower crustal granulites of the Kaapvaal Craton, southern Africa

Manuscripts in Press

Gastaldo, R.A., Perkynova, E., Simunek, Z., and **Schmitz, M.D.**, Ecological persistence in the Late Mississippian (Serpukhovian-Namurian A) megafloral record of the Upper Silesian Basin, Czech Republic: accepted to Palaeo.

Refereed Articles

Schmitz, M.D. and Schoene, B., 2007, Derivation of Isotope Ratios, Errors and Error Correlations for U-Pb Geochronology Using ^{205}Pb - ^{235}U -(^{233}U)-Spiked Isotope Dilution Thermal Ionization Mass Spectrometric Data: *Geochemistry, Geophysics and Geosystems* (G3) 8, Q08006, doi:10.1029/2006GC001492.

Baldwin, J.A., Brown, M., **Schmitz, M.D.**, 2007, First application of titanium-in-zircon thermometry to ultrahigh-temperature metamorphism: *Geology* 35:295-298; doi: 10.1130/G23285A.1.

Ramezani, J. Davydov, V.I., **Schmitz, M.D.**, Bowring, S.A., Snyder, W.S., Northrup, C.J., 2007, High-precision U-Pb zircon age constraints on the Carboniferous-Permian boundary in the southern Urals stratotype: *Earth and Planetary Sciences Letters* 256:244-257.

Aleinikoff, J.N., Wintsch, R.P., Tollo, R.P., Unruh, D.M., Fanning, C.M., **Schmitz, M.D.**, 2007, Ages and origins of rocks of the Killingworth Dome, south-central Connecticut: implications for the tectonic evolution of southern New England: *American Journal of Science* 307:63-118.

Ashwal, L.D., Armstrong, R.A., Roberts, R.J., **Schmitz, M.D.**, Corfu, F., Hetherington, C.J., Burke, K., Gerber, M., 2007, Geochronology of zircon megacrysts from nepheline-bearing gneisses as constraints on tectonic setting: implications for the resetting of the U-Pb and Lu-Hf isotopic systems: *Contributions to Mineralogy and Petrology* 153:389-403.

Chernykh, V.V., Chuvashov, B.I., Davydov, V.I., **Schmitz, M.D.**, Snyder, W.S., 2006, Usolka section (southern Urals, Russia): a potential candidate for GSSP to define the base of the Gzhelian Stage in the global chronostratigraphic scale. *Geologija* (Ljubljana) 49/2:205-217.

Crowley, J.L., **Schmitz, M.D.**, Bowring, S.A., Williams, M.L., Karlstrom, K.E., 2006, U-Pb and Hf isotopic analysis of zircon in lower crustal xenoliths from the Navajo volcanic field: 1.4 Ga mafic magmatism and metamorphism beneath the Colorado Plateau: *Contributions to Mineralogy and Petrology* 151:313-330.

Schmitz, M.D., Bowring, S.A., Southwick, D.L., Boerboom, T.J., Wirth, K.R., 2006, High-precision U-Pb

geochronology in the Minnesota River Valley subprovince and its bearing on the Neoarchean to Paleoproterozoic evolution of the southern Superior Province: *Geological Society of America Bulletin* 118:82-93.

- Schoene, B., Crowley, J.C., Condon, D.J., **Schmitz, M.D.**, Bowring, S.A., 2006, Reassessing the uranium decay constants for geochronology using ID-TIMS U–Pb data: *Geochemical et Cosmochimica Acta*, 70:426-445.
- Silver, P.G., Behn, M.D., Kelley, K., **Schmitz, M.D.**, Savage, B., 2006, Understanding cratonic flood basalts: *Earth and Planetary Science Letters* 245:190-201.
- Schmitz, M.D.** and Smith, I.E.M., 2004, The petrology of the Rotoiti eruption sequence, Taupo Volcanic Zone: an example of fractionation and mixing in a rhyolitic system: *Journal of Petrology* 45:2045-2066.
- Schmitz, M.D.**, Bowring S.A., de Wit, M.J. and Gartz, V., 2004, Subduction and terrane collision stabilized the western Kaapvaal craton tectosphere 2.9 billion years ago: *Earth and Planetary Science Letters* 222:363-376.
- Schmitz M.D.**, Vervoort J.D., Bowring S.A. and Patchett P.J., 2004, Decoupling of the Lu-Hf and Sm-Nd isotopic systems during the evolution of granulitic lower crust beneath southern Africa: *Geology*, 32:405-408.
- Schmitz, M.D.** and Bowring, S.A., 2004, Lower crustal granulite formation during Mesoproterozoic Namaqua-Natal collisional orogenesis, southern Africa: *South African Journal of Geology* 107:175-190.
- Silver, P.G., Fouch, M.J., Gao, S.S., **Schmitz, M.D.**, Kaapvaal Seismic Group, 2004, Seismic anisotropy, mantle fabric, and the magmatic evolution of Precambrian southern Africa: *South African Journal of Geology* 107:104-119.
- Bell, D.R., **Schmitz, M.D.** and Janney, P.E., 2003, Mesozoic thermal evolution of the southern African mantle lithosphere: *Lithos* 71, 273-287.
- Bowring, S.A., **Schmitz, M.D.**, 2003, High precision zircon geochronology and the stratigraphic record: in Hanchar, J.M., Hoskins, P.W.O. *Zircon: Experiments, Isotopes, and Trace Element Investigations* Reviews in Mineralogy and Geochemistry 53, 305-326.
- Schmitz, M.D.**, Bowring, S.A. and Ireland, T.E., 2003, Evaluation of the Duluth Complex Anorthositic Series (AS3) zircons as a geochronological standard: new high-precision IDTIMS analyses: *Geochimica et Cosmochimica Acta* 67:3665-3672.
- Schmitz, M.D.**, Bowring, S.A., Ludwig, K.R. and Renne, P.R., 2003, Comment on “Precise K-Ar, ⁴⁰Ar-³⁹Ar, Rb-Sr and U-Pb mineral ages from the 27.5 Ma Fish Canyon Tuff reference standard: by M.A. Lanphere and H. Baadsgaard”: *Chemical Geology* 199:277-280.
- Schmitz, M.D.** and Bowring, S.A., 2003, Constraints on the thermal evolution of continental lithosphere from U-Pb accessory mineral thermochronology of lower crustal xenoliths, southern Africa: *Contributions to Mineralogy and Petrology* 144:592-618.
- Schmitz, M.D.** and Bowring, S.A., 2003, Ultrahigh-temperature metamorphism in the lower crust during Neoarchean Ventersdorp rifting and magmatism, Kaapvaal Craton, southern Africa: *Geological Society of America Bulletin* 115:533-548.
- Schmitz, M.D.** and Bowring, S.A., 2001, U-Pb zircon and titanite systematics of the Fish Canyon Tuff: an assessment of high-precision U-Pb geochronology and its application to young volcanic rocks: *Geochimica et Cosmochimica Acta* 65:2571-2587.
- Schmitz, M.D.** and Bowring, S.A., 2001, The significance of U-Pb zircon dates in lower crustal xenoliths from the southwestern margin of the Kaapvaal Craton, southern Africa: *Chemical Geology* 172:59-76.
- Carlson, R.W., Boyd, F.R., Shirey, S.B., Janney, P.E., Grove, T.L., Bowring, S.A., **Schmitz, M.D.**, Dann, J.C., Bell, D.R., Gurney, J.J., Richardson, S.H., Tredoux, M., Menzies, A.H., Pearson, D.G., Hart, R.J., Wilson, A.H. and Moser, D., 2000, Continental growth, preservation and modification in southern Africa: *GSA Today* 10 (2).
- Holzheid, A, **Schmitz, M.D.** and Grove, T.L., 2000, Textural equilibria of iron sulfide liquids in partly molten silicate aggregates and their relevance to core formation scenarios: *Journal of Geophysical Research* 105:13555-13567.
- Schmitz M.D.**, Wirth K.R. and Craddock J.P., 1995, Major and trace element geochemistry of Early Proterozoic mafic dikes of northern Minnesota and southern Ontario: in, Baer, G., and Heiman, A., eds., *Physics and Chemistry of Dykes*, Proceedings of the Third Mafic Dyke Conference, Jerusalem, Israel, A.A. Balkema: Rotterdam, p. 219-233.

Abstracts

- *Kurz, G.A., **Schmitz, M.**, Northrup, C.J., 2008, Tracer isotope geochemistry and U-Pb zircon geochronology of intrusive rocks from the Wallowa and Olds Ferry arc terranes, Blue Mountains Province, northeastern Oregon and west-central Idaho: Cordilleran and Rocky Mountain Sections Joint Meeting, Geological Society of America Abstracts with Programs 40(1), p. 87.
- *Dye, J.H., Baldwin, J.A., Crowley, J., **Schmitz, M.**, 2008, Late Cretaceous amphibolite facies metamorphism in the Sapphire Mountains, southwestern Montana constrained by U-Pb dating of monazite, Cordilleran and Rocky Mountain Sections Joint Meeting, Geological Society of America Abstracts with Programs 40(1), p. 35.
- *Tumpane, K., Crowley, J., **Schmitz, M.**, Northrup, C.J., 2008, New geochronological constraints on the deposition of the Huntington Formation, Olds Ferry Terrane, and implications for the evolution of the Blue Mountains Province, Cordilleran and Rocky Mountain Sections Joint Meeting, Geological Society of America Abstracts with Programs 40(1), p. 47.
- Crowley, J., Bowring, S., **Schmitz, M.**, 2008, High-precision chronologies of magma chamber dynamics: ID-TIMS U-Pb dating of small chemical domains: Cordilleran and Rocky Mountain Sections Joint Meeting, Geological Society of America Abstracts with Programs 40(1), p. 74.
- *Rivera, T.A., White, C.M., **Schmitz, M.D.**, 2007, Preliminary Multi-Isotopic Data and Potential Regional Connections for Late Cenozoic Basalts of the Western Snake River Plain, Idaho: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract V13D-1591.
- Schmitz, M.D.**, Davydov, V.I., Snyder, W.S., 2007, High-precision marine Sr isotope geochronology in deep time: Permian tuffs and conodonts: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract V31G-08.
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